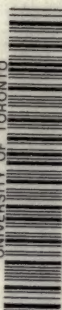


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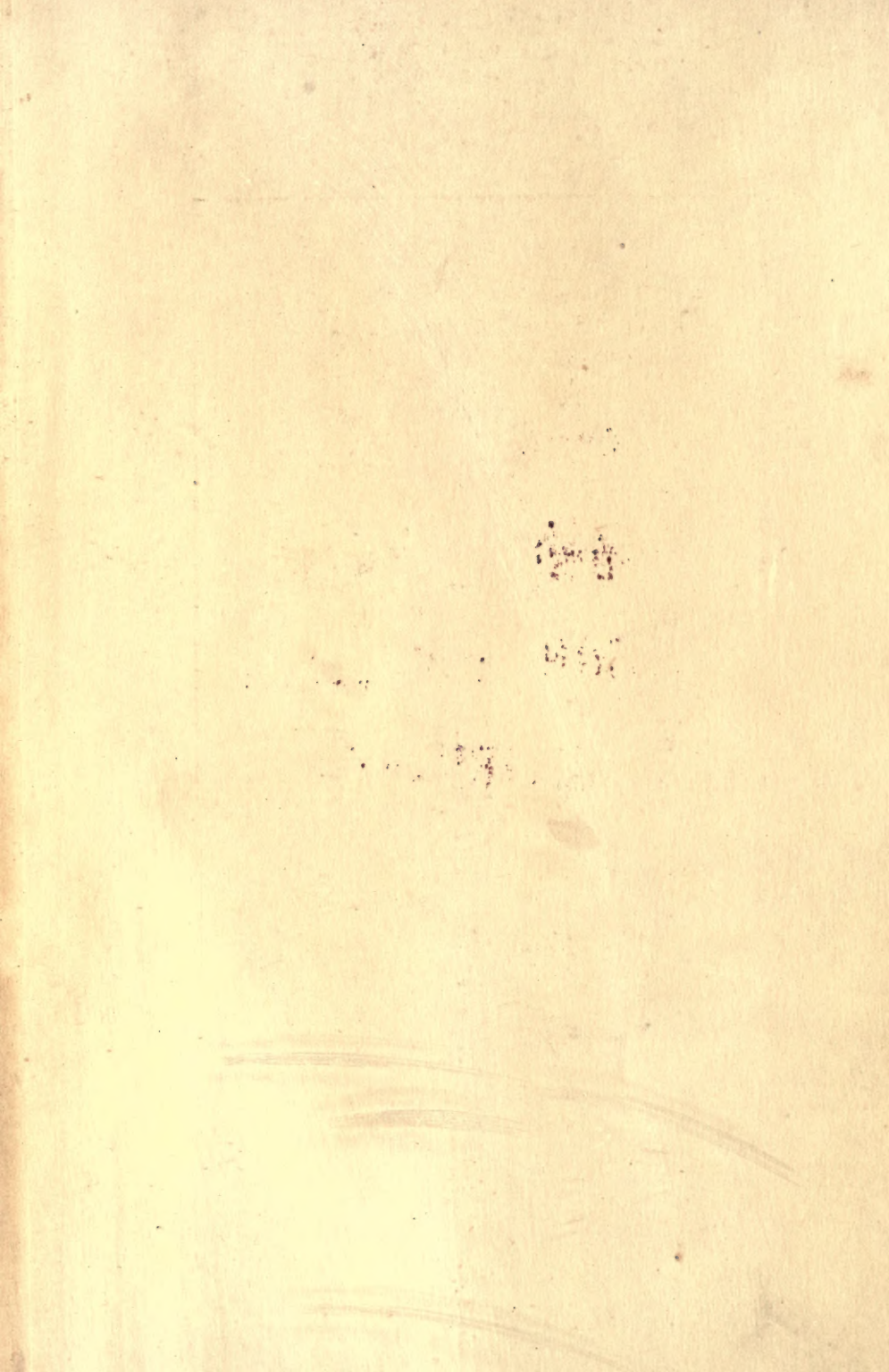
CANADA

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*Arms
Dominion of Canada*

CANADA

To the Delegates *of the*
Ninth Congress
Chambers *of* Commerce
of the
British Empire

Toronto
September 18-22 1920

With the Compliments *of*
The BOARD *of* TRADE *of the* CITY *of* TORONTO

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Foreword

THOSE chosen to represent the public business organizations of the chief commercial centres at the Ninth Congress of Chambers of Commerce of the British Empire, to be held in Toronto this year, would in the opinion of the members of the Board of Trade of that city naturally be interested in the country which is privileged to have them as visitors. Particularly is this the case at a time when the Empire is seeking to re-adjust itself to new conditions following the great struggle out of which it has so recently emerged. For this reason the Board decided to ask each delegate to accept with its compliments this brief description of the Dominion and its provinces, and resume of facts illustrative of changes and developments during the period of the war, and those now taking place. Care has been taken to have the information given in the pages following as complete and accurate as possible, so as to be of real service to our guests, who are sure to be particularly interested in the social and economic well-being of all sections of the Empire.

The Committee appointed to assist in making the visit of those attending the Congress as pleasant and profitable as possible are under obligation to a very large number of officials in the public service, and to leading business organizations, for invaluable assistance in compiling this volume. So many have assisted, and so willingly, as to make it impracticable to extend individual acknowledgment. I am sure, however, that they will feel amply rewarded for the trouble taken if the information given is of interest to our visitors, and of service in extending their knowledge of Canada as it is to-day, and of our country's potentialities. For their hearty co-operation, I would, therefore, take this opportunity of extending the sincere thanks of the Board.

CHARLES MARRIOTT,

President.

TORONTO, September, 1920.



THE FATHERS OF CONFEDERATION



The Story of Confederation



FOR many years prior to its accomplishment the idea of uniting the British Provinces of North America under one Government had intermittently occurred to the minds of Colonial public men. The difficulty of communication between the several Provinces was felt, however, to be an insuperable bar to any closer relations than those involved in their common allegiance to the British Crown, and it was not until the introduction of railways had in some measure removed that obstacle, that the scheme may be said to have entered the domain of practical politics.

Shortly after the conclusion of the Treaty of Paris in 1763, whereby the French King ceded to the British Crown his possessions in North America, His Majesty George III put forth a Royal Proclamation outlining the boundaries of his recently-acquired possessions in North America, including Canada, then known as "Quebec." In 1774 a Statute of the Imperial Parliament, styled the Quebec Act, further defined these boundaries, and constituted a Government for the "Province of Quebec." Seventeen years later, in 1791, an Imperial Order-in-Council divided the Province of Quebec into two Provinces, to be called respectively Upper and Lower Canada. In 1840 these Provinces were reunited under the name of Canada. This plan, the outcome of Lord Durham's report on the conditions prevailing in Canada at the time of the Rebellion of 1837-8, the causes of which he was sent out to investigate, while perhaps the best remedy for the ills existing at the time, did not prove a permanent success, owing in large measure to racial differences between Upper and Lower Canada. So great was the mutual distrust and suspicion between the two Provinces, that all government became well-nigh impossible. At last, in 1864, deadlock was reached on the floor of the Legislative Assembly. Animated by the highest motives, the

The Story of Confederation

leaders of both political parties then came together and, sinking their personal and political differences, united in a coalition Government with a view to putting an end to the Constitutional difficulties between Upper and Lower Canada and enabling the Queen's Government to be carried on.

It so happened that about this time, a movement was taking form in Nova Scotia, New Brunswick and Prince Edward Island, having for its object the legislative union of these Provinces among themselves, and a meeting of delegates, with that object in view, had arranged to convene at Charlottetown on the 1st September, 1864. The occasion was felt by the Canadian Government to be opportune, and they determined to take advantage of it. Accordingly eight members of the Ministry, including the leaders of both parties, repaired to Charlottetown and sought permission to address the Conference in advocacy of a larger scheme which should embrace all the British Colonies. This proposal so far commended itself to the Maritime members, that they agreed to suspend their deliberations, and adjourned to meet at Quebec in the course of the following month for the purpose of conferring with the Canadian representatives on the subject of a *federal* union of all the British North American Provinces. This plenary Conference assembled at Quebec on the 10th October, 1864. It was composed of twelve members from Canada (the whole Cabinet), five members from Nova Scotia, seven members from Newfoundland, thirty-three in all, under the presidency of Sir Etienne Taché, Prime Minister of Canada. It closed its session in Montreal on the 29th October, having adopted seventy-two resolutions defining the powers and functions of the General and Provincial legislatures which it was proposed to establish. These resolutions were subsequently approved by the Canadian Parliament, the Legislatures of Nova Scotia and New Brunswick contenting themselves with the passage of a resolution authorizing, in general terms, the appointment of delegates to arrange with the Imperial Government a plan of union. Prince Edward Island and Newfoundland absolutely rejected the whole scheme. At a further Conference held in London in December, 1866, and the opening months of 1867, the Quebec resolutions were, with some modifications, incorporated in an Act of the Imperial Parliament known as the British North America Act, which received the Royal assent on the 29th March, 1867, and was brought into force by a Royal Proclamation on the 22nd May following, which declared that after the 1st July, 1867, the Provinces of Canada, Nova Scotia and New Brunswick should form and be one Dominion under the name of Canada.

In 1869 Rupert's Land and the North Western territory,

The Story of Confederation

purchased from the Hudson's Bay Company for £300,000, out of which were subsequently carved the Provinces of Manitoba, Saskatchewan and Alberta, were added to the new Dominion. In 1871, the colony of British Columbia came into the Union, followed in 1873 by Prince Edward Island.

The experiment of fifty years ago has proved an undoubted success. A number of sparsely settled provinces, with scarcely any knowledge of or communication with each other, divided by petty jealousies, hostile tariffs, different currencies, dissimilar postal systems, and the like, has become one vast community, stretching from sea to sea, united by a common purpose, and destined, in all human probability, to attain to unexampled heights of prosperity and greatness.

For Canada is only at the beginning of her career, but yet in the morning of youth. No man can foresee the greatness in store for this Dominion, or set bounds to its future. Prosperity and progress will, no doubt, bring with them new responsibilities to be faced, new problems to be solved, new difficulties to be overcome. The great war for the freedom and liberties of the world, in which Canada took so glorious a part, will doubtless effect many things with us. Experience gained by association in a common cause, by participation in common suffering, and by sharing in a common triumph, cannot but conduce to increased breadth of view, to a wider knowledge of the outside world, and especially to more extensive and intimate relations with the sister dominions within our own Empire.

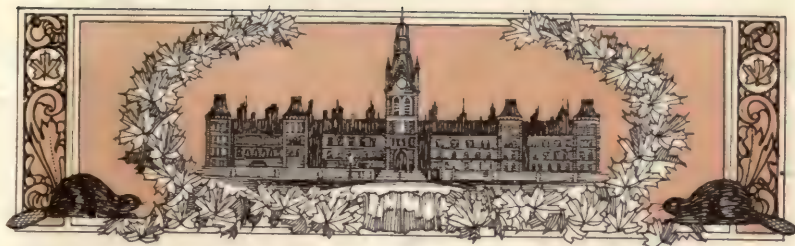




This beaver dam is 100 feet long, and 6 feet high. The top is about 2 feet wide, and the foundation about 10 feet.



THE BEAVER—THE ORIGINAL CANADIAN LUMBERMAN



The Dominion of Canada To-Day

THE Dominion of Canada comprises the whole of the northern half of North America with the exception, on the west, of Alaska, which belongs to the United States, and on the east, part of the coast of Labrador, which is under the jurisdiction of Newfoundland. On the east Canada is washed by the Atlantic Ocean, the Pacific forms its western boundary, and from the Arctic Ocean on the north it extends south to the International Boundary between Canada and the United States. The area of the Dominion is 3,729,665 square miles, of which 3,603,910 are land. The land area is 29.6 times that of the United Kingdom of Great Britain and Ireland, or nearly equal to that of the Continent of Europe. Canada is twice the size of the Indian Empire. Add together the area of all the British territory in Australasia and the total is nearly 400,000 square miles less than the area of Canada. The total area of the British Empire, exclusive of territories held as mandatory from the League of Nations, is 13,153,000 square miles, of which over 28 per cent. is under Canadian jurisdiction.

POPULATION

This vast territory, since Jacques Cartier in 1534 first landed at Gaspé, has become the home of nine million people, of which 4,600,000 are of British and 2,500,000 of French origin. There continues to be a steady natural increase which was augmented in the decade prior to the war by immigration from many countries. Of Germans there were in 1910 no less than 398,320, and while, since that year, the immigrants of that nationality were few in number, the neighbouring European countries continued to send many settlers who proved to be a very potent factor in the development of the country, and a factor also in maintaining a normal volume of production, when in the war period so large

The Dominion of Canada To-Day

a proportion of the Dominion's vigorous manhood volunteered for active service.

As already outlined in preceding pages, the problem of one government for peoples of different national origin was solved for Canada by the fathers of Confederation. The form of Government built upon the foundations laid by them has proven effective in gradually bringing about the assimilation of immigrants of alien origin, settling in a new territory and there building new homes and undergoing the trials and endurances of pioneer life, into Canadian Citizenship. High civic ideals dominate community life throughout the Dominion and they are assiduously fostered by public men. Evidence of the spirit which actuates Canadian citizenship may be found in its war record. The honor roll of those who still lie in Flanders' fields includes names showing that heroes of battles which brought renown to Canadian arms, while chiefly of British, in a goodly number of cases had family origin in practically every European country. Yet in the defence of the democratic ideals of the land now their family domicile, this unity was as marked as their valor. The struggle through which the nation has just passed aided in stabilizing unity of aim and purpose and mellowing racial prejudice. Among the various races emulation exists as to relative progress, whether it be in the direction of culture or commerce.

SYSTEM OF GOVERNMENT

The system of government established in Canada under the British North America Act of 1867 is a Federal Union (the first of the kind in the British Empire) having (a) a general or central government controlling matters essential to the development, the permanency and the unity of the whole Dominion, and (b) a number of local or provincial governments having the control and management of certain matters naturally and conveniently falling within their defined jurisdiction, while each government is administered in accordance with the British system of parliamentary institutions.

The chief executive government and authority is vested in the Sovereign, represented by a Governor-General, appointed by the King-in-Council. The Parliament of Canada consists of the Senate which, as at present constituted, has 96 members appointed for life, 24 each from Ontario and Quebec, 10 each from Nova Scotia and New Brunswick, 6 each from Manitoba, Saskatchewan, Alberta, and British Columbia, and 4 from Prince Edward Island; and a House of Commons of 234 members, who are elected by the people for a term limited to five years. The

The Dominion of Canada To-Day

representation is arranged after each decennial census, by Act of Parliament, the basis being that the Province of Quebec is always to have 65 representatives, and each of the other provinces such a number as will give the same proportion of representatives to its population as the number 65 bears to the population of Quebec as ascertained by the census. British Columbia, by the terms of the agreement made between the Dominion and the province prior to the union, is never to have less than six members.

FUNCTIONS OF PARLIAMENT

Speaking generally, the Federal Parliament has power "to make laws for the peace, order and good government of Canada" in relation to all matters not assigned exclusively to the legislatures of the provinces. In particular, the Dominion Parliament legislates for all Canada in respect to the following matters: (1) Taxation and borrowing for Dominion purposes; (2) Elections to Dominion Parliament; (3) The census; (4) Naturalization of aliens; (5) Military and naval service and defence; (6) Postal Service; (7) Supreme Court, the appointment and payment of Superior Court judges; (8) Criminal law; (9) Interprovincial trade and commerce, including navigation and shipping, light-houses, quarantine, general fishery regulations, etc.; (10) General financial and commercial system—that is, currency and coinage, banks, paper money, legal tender, bills of exchange and promissory notes, interest, weights and measures and bankruptcy; (11) Copyright; (12) Marriage and divorce*; (13) Public works, railway and steamship lines which are interprovincial or for the general benefit of Canada; (14) Indians and Indian lands; (15) Performance of international obligations imposed by the British Parliament; (16) Territories not within the provinces, including the establishment of new provinces.

EXECUTIVE GOVERNMENT

The executive government is divided into the following departments, over each of which presides a member of the Cabinet:

Agriculture Department in charge of agricultural, dairying, fruit and live stock interests, experimental farms, expositions, entomology. The Commission of Conservation is also under its jurisdiction.

Archives Department.

Auditor General's Department.

Customs and Inland Revenue Department.

*Provinces have quite recently established the right to legislate in respect of divorces.



NIAGARA FALLS BY NIGHT

Illuminated by 18 floodlight projectors on the roof of a nearby generating station, with an auxiliary battery of 10 projectors on top of Table Rock House so trained upon the Horseshoe Falls and adjusted to give as even an illumination as possible from Goat Island to the Canadian side of the Falls

The Dominion of Canada To-Day

External Affairs Department.

Finance Department handles all matters of finance including Pensions and Superannuation and Retirement Fund. In addition the High Commissioner's Office, Ottawa Improvement Commission, National Battlefields Commission, Economic and Development Commission come under this Department.

Health Department.

Immigration and Colonization Department.

Indian Affairs Department.

Insurance Department.

Interior Department including Dominion Lands, Land Patents, Dominion Parks, Railway and Swamp Lands, Irrigation, Water Powers, Surveys, Forestry, and Dominion Observatory.

Justice Department charged with the administration of justice and management of penitentiaries.

Labour Department.

Marine and Fisheries Department, which also handles the Meteorological Service with all other marine and fisheries services.

Militia Department.

Mines Department, including Geological Survey.

Naval Service Department, which includes, besides the Naval Service and its various branches, radio-telegraph service; Fisheries Overseers, Inspections, etc.; Oyster Culture; Fish Breeding Establishments and Canadian Fisheries Museum.

Post Office Department.

Printing and Stationery Department.

Privy Council Department, including the Dominion Police Force and Royal Canadian Mounted Police.

Public Works Department, also managing the National Gallery.

Railways and Canals Department.

Secretary of State Department, which includes the Civil Service Commission.

Trade and Commerce Department, administering Dominion Bureau of Statistics, Patent Records, Trade Marks and Copy-rights, Weights and Measures, Gas and Electric Light Inspection in addition to all matters pertaining to the extension and development of Canadian trade. The Honorary Advisory Council for Scientific and Industrial Research is also affiliated.

The Dominion of Canada To-Day

As a result of the war several new departments were established among which are the:—

Department of Soldiers' Civil Re-Establishment.

Soldiers' Settlement Board.

War Purchasing Commission.

National Service Commission.

Board of Pension Commissioners.

JUDICIARY

The Judiciary Branch of the Federal Government consists of two courts, the Supreme Court of Canada and the Exchequer Court.

The Supreme Court has appellate, civil and criminal jurisdiction throughout Canada. It is also a court of appeal for controverted election cases, and has jurisdiction in controversies between the provinces and the Dominion. The Governor-in-Council may refer to the Supreme Court for an opinion upon any matter deemed advisable in the public interest. From the decision of the Supreme Court an appeal lies to the Judicial Committee of the Privy Council of Great Britain.

The Exchequer Court possesses exclusive, original jurisdiction in all cases in which demand is made or relief sought against the Crown or any of its officers. It enforces the law relating to revenue, and is also a Colonial Court of Admiralty.

The International Joint Commission is composed of three members representing the United States and three members representing the Dominion of Canada, and its objects are to settle all disputes and questions regarding the boundary waters between the United States and Canada.

The Board of Railway Commissioners for Canada has jurisdiction in all matters relating to the regulation of railway systems in Canada.

The judges of the higher courts are appointed and paid by the Federal Government, but the administration of the courts is left to the respective provinces.

PROVINCIAL GOVERNMENTS

The British North America Act also provides for the formation and government of Provinces. At the head of each provincial government is a Lieutenant-Governor, appointed by the Governor-in-Council of Canada.

In the Provinces of Ontario, New Brunswick, Prince Edward Island, Manitoba and British Columbia there is but a single

The Dominion of Canada To-Day

Legislative Assembly for each. Quebec and Nova Scotia have each a second chamber, or Legislative Council, the members of which are appointed for life by the provincial government. The executive work of government in each province is carried on by the Lieutenant-Governor, advised by his ministers, who hold seats in the Legislature and receive the support of a majority of its members.

A Provincial Legislature may exclusively make laws in reference to: (1) Amendments to the provincial constitution (except as to the Lieutenant-Governor); (2) Sale and management of public lands; (3) Direct taxation and borrowing for provincial purposes; (4) Provincial officials; (5) Provincial elections, franchise and election trials; (6) Municipal system; (7) Licenses of hotels, saloons, shops, etc.; (8) Charitable institutions; (9) Administration of justice in the province, establishment of courts, both civil and criminal, punishment of breaches of provincial laws, provincial prisons; (10) Education; (11) Property and civil rights in the province; (12) Solemnization of marriage; (13) Local works, companies with provincial objects; (14) Matters generally of a provincial character.



PARLIAMENT BUILDINGS, VICTORIA, B.C.



THE TAKING OF VIMY RIDGE, APRIL 9, 1917

Canada and the War

WHEN in the late summer of 1914 it became evident, beyond a doubt, that war with the central powers of Europe was inevitable, the people of Canada set to work heartily to place their resources in men and material at the service of the Empire. For practical purposes, no army then existed. There was a permanent force of about 3,000 men, with no reserve, its purpose being to garrison a few points which had become partially obsolete as fortresses, and to train the militia. This small force was not trained for expeditionary purposes, but such training as it had, formed the nucleus of the effective organization which developed in the fateful years of the war.

In the late summer and early autumn of 1914, the First Canadian Division of 33,000 men was raised and sent across the Atlantic. It left Gaspé Bay on October 3 and, after nearly three months of additional training in England, landed in France, at Ste. Nazaire, on February 11, 1915. The Second Division was formed immediately and landed in France on September 14, when the Canadian Army Corps was formed. The formation of the Third Division was authorized just before Christmas, 1915, and the Division was in France early in 1916. The Fourth Division joined the Canadian Corps in the middle of August, 1916. The Canadian Cavalry Brigade appeared in France in 1915. After the completion of the Canadian Army Corps the policy of the Dominion was to maintain a comparatively small number of divisions, but always to keep these at full strength, in order that the troops might have the encouragement of full ranks.

The total number of men enlisted in Canada from the beginning of the War to November 15, 1918, was 595,441. In addition to this number 14,590 British and Allied reservists went from Canada to rejoin the colors in their own countries. Of the enlisted men the number who had gone overseas on November 15th, 1918, was 418,052. Very soon after hostilities commenced, Canadians were on the way to Britain, and by the eve of 1914, 30,999 men were either landed there or on their way. In 1915, 84,334 were moved overseas, followed in 1916 by a further army of 165,553; in 1917 by one of 63,536, and in 1918 by one of 73,630. On September 30, 1918, about 160,000 men were in France, and 116,000 in England.

The total casualties sustained by the Canadian Expeditionary

Canada and the War

Force, and reported to January 15, 1919, were 218,433. The details are:

	Officers	Other Ranks	Total
Killed in action.....	1,844	33,840	35,684
Died of wounds.....	614	11,823	12,437
Died of disease.....	227	3,830	4,057
Wounded.....	7,133	148,706	155,839
Prisoners of war.....	.....	.....	3,049
Presumed dead.....	142	4,540	4,682
Missing.....	37	361	398
Deaths in Canada.....	.....	.....	2,287
Total.....			218,433
Before December 31, 1915.....			14,500

Honors granted to Canadians included 53 Victoria Crosses and 513 Distinguished Service Order badges.

The casualty lists, and the honors granted, testify to the distinguished part taken by Canadian forces on the Western front.

OVERSEAS ACHIEVEMENTS

In 1915 the First Division greatly distinguished itself in the second Battle of Ypres, on April 22, and again at Festubert and Givenchy, in May and June. In 1916 the Canadians, now forming three divisions, were very heavily engaged at St. Eloi in April, and at Sanctuary Wood and Hoge in June. In September, October and November the four Canadian Divisions fought in the Battle of the Somme, especially distinguished themselves at Courcelette, Mouquet Farm, and the Kenora, Regina, and Desire Trenches.

In 1917 the Canadian Troops bore the largest part in the taking of Vimy Ridge (April 9) and of Arleux and Fresnoy (April 28 and May 3), and fought with great success in the advance on Lens and the taking of Hill 70 in August. They were again heavily engaged in the fighting round Passchendaele in October and November, capturing all their objectives in spite of severe losses.

In 1918 the Canadian Cavalry, Motor Machine Guns, and Railway Troops were active in the resistance to the German advance in March. The Canadian Corps was in the center of the British front in the second Battle of Amiens, August 8-17, advancing 14,000 yards on the first day, the deepest advance made in one day during the War. In the Battle of Arras, at the beginning of September, the Canadians played an important part in the breaking of the Queant-Drocourt line, a part of the Hindenburg system. The Canadian casualties in these two actions were serious but less than the number of prisoners taken.

Canada and the War

The Battle of Cambrai began on September 27 and on October 9 the Canadians, after heavy losses, took Cambrai and made large captures of men and material. In the final stage of the fighting Denain was taken by the Canadians on October 20, Valenciennes on November 2 and Mons at 4 a.m. on November 11, on which day the armistice came into force at 11 a.m.

The Canadian troops captured 45,000 prisoners, 850 artillery guns and 4,200 machine guns, retook 130 towns and villages, and liberated 310,000 French and Belgian civilians.

Canadian units have also served in Palestine, Macedonia and Russia.

In addition to the Expeditionary Forces which earned so distinguished a record in the fighting lines, Canadian Railway troops were responsible for the whole of the construction of light railways and of sixty per cent. of the standard-gauge railways in the area occupied by the British forces. Forestry units and Army Medical Corps were auxiliary branches which in their respective fields won the admiration of the directing authorities of the allied forces.

In her contribution to the effectiveness of the air forces of the Allies, Canada earned the commendation of the Allies generally. No less than 12,902 Canadians joined the Royal Air Force and its predecessors, the Royal Naval Air Service, and the Royal Flying Corps. In addition, a number of Americans were trained in Canada by the instructional staff of the Royal Air Force.

Some 4,701 men were furnished from Canada for the Imperial Service known as the Inland Waterways and Docks. About 710 Canadians joined the Imperial Motor Transport Service, and several hundred Canadians, mostly from the universities, received commissions in the British Army. Canada also furnished several hundred doctors and veterinarians, and about 200 nurses to the British Army. Some 200 Canadian officers were lent, as instructors, to the United States.

At the outbreak of the War, Canada possessed but two naval vessels, the *Niobe*, a cruiser of 11,000 tons, with a main armament of sixteen 6-inch guns, and the *Rainbow*, a small cruiser of 3,600 tons, with light armaments. Both did good service. In addition to the men serving on these vessels, and other craft taken into service for patrol service, over 1,700 men were recruited in Canada for the Imperial Navy, and are on service in European waters; 73 Surgeon Probationers and a number of Hydrographic Survey Officers were sent from Canada and 580 Canadians enrolled as Probationary Flight Lieutenants in the Royal Naval Air Service, before recruiting for the Royal Air Force began in Canada. More

Canada and the War

than 500 Canadians holding commissions in the Royal Naval Volunteer Reserve joined the British Auxiliary Patrol and similar services.

RE-ADAPTATION OF CIVILIAN EFFORT

So far an outline has been given of the extent of Canada's part in the supply of men for first line offensives and for the maintenance of essential auxiliary forces. To maintain these forces necessitated a drastic re-adaptation of civilian efforts. Prior to the War the energies of the people were directed, as they had been since Confederation, to the organization of their vast territory and to bring it under control by the extension of transportation and other services. It was then, as it is to-day, a herculean task. The population is still, in comparison with the vast area it controls, very small. Under such conditions, much capital necessarily had to be borrowed, and the chief lender was the United Kingdom. But War brought borrowing to a standstill, and the energy and capital devoted to the construction of railways, bridges and other forms of permanent improvement had to be applied to war purposes. And it was applied in a measure which extended in volume as necessity arose. The foundation for this effort on the part of the Canadian people was the funds placed by them at the disposal of their own government, as indicated by the result of the following War Loans:

	Amount of Loan	Amount Subscribed	No. of Subscribers
1915.....	\$ 50,000,000	\$113,729,500	24,862
1916.....	100,000,000	195,371,000	34,526
1917.....	150,000,000	236,600,000	41,000
1917.....	150,000,000	419,289,000	820,035
1918.....	300,000,000	695,500,000	1,140,057
1919.....	300,000,000	676,242,000	789,532
	<hr/> \$1,050,000,000	<hr/> \$2,336,731,500	

Since the outbreak of the War to November 30th, 1918, Canada established credits on behalf of the Imperial Government to the amount of \$709,000,000. Through these advances Great Britain was able to finance the purchase of foodstuffs, hay and other commodities and to carry on the operations of the Imperial Munitions Board in Canada.

In addition to the above, Canadian chartered banks have advanced to the Imperial Government through the medium of the Minister of Finance the sum of \$200,000,000 for the purchase of munitions and wheat. This was made possible by the large savings deposits in Canadian banks, which from August, 1914, to October 31, 1918, despite the withdrawals for subscription to war loans, increased by \$417,115,476.

Canada and the War

On the other hand, Great Britain has made advances to the Dominion totalling \$609,000,000. These credits were chiefly for the maintenance of the Canadian troops overseas.

PRODUCTION OF WAR SUPPLIES

In 1914 Canada exported munitions and other materials for war purposes to the value of \$28,164; in 1915, \$57,213,688; in 1916, \$296,505,257; in 1917, \$388,213,553; and in 1918, \$260,711,751, the total for the war period being \$1,002,672,413. Over 65,000,000 shells, 110,000,000 lbs. of explosives and chemicals, 100,000,000 lbs. of metals and compounds, 55,000,000 feet of lumber were amongst the exports, in the war period, destined for purely war purposes. The growth of the munitions industry had its genesis following enquiries made of the Department of Militia and Defence by the War Office as to the possibility of obtaining a supply of shell from Canada. Ensuing negotiations led to the appointment by the Minister of Militia, in September, 1914, of an honorary committee, known as the Shell Committee, to undertake the task of supplying shrapnel shell to the Imperial Government. Its status was nominally that of contractor to the British Government, but really that of agent for the purpose of placing contracts on behalf of the War Office.

Basic steel, the only kind of steel made in Canada, was found by experiment to be suitable for the manufacture of shells. The first shipments of these from Canada were made in the month of December, 1914, and by the end of May, 1915, approximately four hundred establishments in Canada were engaged in the manufacture of shells or component parts.

By November, 1915, the Imperial Government had placed orders in Canada for munitions to the amount of approximately \$300,000,000. This represented such a great volume of business that it was considered desirable to form a Board directly responsible to the Imperial Ministry of Munitions. The operations of the Shell Committee, therefore, were passed over to the Imperial Munitions Board. The general policy of the Committee, maintained by the Board, was that of eliminating the middleman and dealing as far as possible with those who would actually perform the work. In pursuance of this policy raw materials of every description were purchased and passed on from one contractor to another, each being paid successively for his labour. This plan had the advantage of saving the contractor large investments of capital otherwise necessary to produce complete shell, and at the same time of enabling a proper distribution of the materials available so that the maximum production might be secured. Contractors were given the opportunity to pay for their necessary

investment of capital from the profits derived from their contracts. Generally speaking, this has been accomplished. Subsequently the business was placed upon a competitive basis.

The Imperial Government placed shipbuilding contracts to the value of \$70,000,000, covering the construction of 43 steel and 58 wooden ships, aggregating 360,000 tons, and established in Canada a plant for the construction of aeroplanes for training purposes, of which 2,500 were produced. This plant latterly produced bombing planes for the United States Navy.

Referring to Canada's services to the Empire in the production of munitions, the report for the year 1917 issued by the Imperial War Cabinet, says:

"Canada's contribution during the last year had been very striking. Fifteen per cent. of the total expenditure of the Ministry of Munitions in the last six months of the year was incurred in that country. She has manufactured nearly every type of shell from the 18-pounder to the 9.2-inch. In the case of the 18-pounder, no less than 55 per cent. of the output of shrapnel shells in the last six months came from Canada, and most of these were complete rounds of ammunition which went direct to France. Canada also contributed 42 per cent. of the total 4.5-inch shells, 27 per cent. of the 6-inch shells, 20 per cent. of the 60-pounder H.E. shells, 15 per cent. of the 8-inch and 16 per cent. of the 9.2-inch."

VOLUNTARY WAR ORGANIZATIONS

Canadian citizens who could not serve in the ranks either on the battle front or in their support at the lathe or forge, seized the opportunity to serve by giving or associating themselves with organized voluntary efforts. The funds raised to carry on the great work of humanity, by such efforts have been officially tabulated as follows:

Canadian Patriotic Fund (to Nov. 30, 1918).....	\$42,864,207
Manitoba Patriotic Fund (to March 31, 1918).....	3,957,042
Canadian Red Cross Society (to Dec. 7, 1918):—	
Contribution in cash.....	7,771,083
Gifts in supplies (estimated).....	13,500,000
British Red Cross Society (to Dec. 31, 1917).....	6,100,000
Belgian Relief Fund (to Dec. 19, 1918)—	
Contributions in cash.....	1,642,104
Gifts in supplies (estimated).....	1,512,800
Contributions from Canada to Y.M.C.A. for Military Work.....	4,574,821
Gifts from Dominion and Provincial Governments to Government of United Kingdom.....	5,469,319
Contributions for the equipment and maintenance of hospitals overseas and in Canada, to the French, Servian and Polish Relief Funds, to associations for the supply of field comforts to troops overseas and for the care of returned soldiers.....	8,000,000
Total.....	\$95,391,376

Canada and the War

The Canadian Patriotic Fund is a national organization (covering all the provinces except Manitoba, which for this purpose is organized separately), the object of which is to give assistance where necessary to the dependent relatives, in Canada, of Allied soldiers and sailors on active service in the present War.



MACDONALD AGRICULTURAL COLLEGE, QUEBEC
Other provinces have similar excellent facilities for agricultural training.

The Canadian Red Cross Society is organized in eight provincial and about 1,200 local branches. Its object is to furnish aid to sick and wounded soldiers as an auxiliary to the Army Medical Corps. The more important activities of the Society include the supply of equipment for Canadian military hospitals, grants to British and other hospitals, care of Canadian prisoners of war, and the collection and shipment of supplies of various kinds, including clothing for the refugees being repatriated in the devastated areas of Europe. The society has collected to the end of December, 1919, \$9,073,485 in money, and continues to provide comforts to war stricken families and men.



MCGILL UNIVERSITY, MONTREAL

Canada's Educational System

UNDER the British North America Act, 1867, the right to legislate on matters respecting education was reserved exclusively to the provincial legislatures, subject to the maintenance of the rights and privileges of the denominational and separate schools as existing at the time of union or admission of provinces. In general there are two fundamental systems of education throughout Canada, one that of the Protestant and other non-Roman Catholic communities, free from the control of religious bodies, and the other that of the Roman Catholic communities in which education is united with the religious teaching of the Roman Catholic Church. In Ontario, Roman Catholics, Protestants and coloured people have each the right to establish "Separate Schools" for elementary education, the local rates for the support of these schools being separately levied and applied. In Quebec, the religious minority in any municipality, whether Roman Catholic or Protestant (the Jews being "Protestants" for all the purposes of the School Law), may dissent and maintain its own elementary and model schools and academies or high schools, the taxation of the minority being separate from that of the majority for the three classes of schools. That is to say, the separate system is complete. In Saskatchewan and Alberta a separate school may be established by the minority, whether Protestant or Roman Catholic, subject, however, to identical regulations as to courses, certificates, inspection, etc. In the remaining provinces there are special provisions for the education of Roman Catholics in the larger cities and towns.

In all the provinces the cost of education is defrayed from the public revenues, provincial and local, and public elementary education is free to parents or guardians except for certain small fees which are payable in parts of the Province of Quebec. With the exception of Quebec all the provinces have laws of compulsory education, but under conditions that differ as between one province and another. As a rule, the provincial laws provide for uniformity in the training of teachers, the use of text books and the grading of pupils. Secondary schools or departments, and colleges or universities for higher education, exist under government control in all the provinces, and the three classes of teaching institutions are more or less co-ordinated to allow of natural transition from the lower to the higher. School terms and holidays are arranged to suit climatic and other local conditions; and it is frequently possible for students to work their own way through college and university. Arrangements for the superannuation of teachers are applied in Nova Scotia, New Brunswick, Quebec and Ontario.

Canada's Educational System

Recent movements in the direction of nature study, manual instruction, school gardens, agriculture, domestic science and technical education are all energetically in progress, and in all the provinces the higher education of women is an important feature of university life.

HIGHER EDUCATION

Higher education in Canada is provided for by a number of universities and colleges. Of the universities, Toronto and McGill (Montreal) are the largest, and with Queen's University (Kingston, Ont.) and Dalhousie University (Halifax, N.S.) take national rank. The oldest university in Canada, viz., King's College, Windsor, Nova Scotia, dates from 1789, and claims to be also the oldest university in His Majesty's Overseas Dominions. Several of the universities are affiliated with the older universities of the mother country, viz., Oxford, Cambridge and Dublin, whilst some of the smaller Canadian universities, as well as most of the colleges, are affiliated with either Toronto or McGill. In the West, provincial universities have been established for Manitoba at Winnipeg (1877), Saskatchewan at Saskatoon (1907), Alberta at Edmonton (1906) and British Columbia at Vancouver (1907).

Some of the universities and colleges are under the control of religious denominations as follows:—

Anglican or Church of England in Canada:—King's College, Windsor, N.S.; University of Bishop's College, Lennoxville, Quebec; University of Trinity College, Toronto; Wycliffe College, Toronto; and Emmanuel College, Saskatoon.

Roman Catholic Church:—University of St. Francis Xavier's College, Antigonish, N.S.; Laval University, Quebec; Laval University, Montreal; University of Ottawa; St. Michael's College, Toronto.

Other Denominations:—Knox College, Toronto (Presbyterian); Mount Allison University, Sackville, N.B.; Victoria University, Toronto; and Wesley College, Winnipeg (Methodist); Acadia University, Wolfville, N.S.; McMaster University, Toronto; and Woodstock College, Woodstock, Ontario (Baptist).

COMMERCIAL EDUCATION

Canadian schools and colleges are becoming more fully alive to the need of a better preparation of the boy or girl for entering on a business career. They are more and more recognizing the necessity of providing, not only a training in

Canada's Educational System

such special subjects as bookkeeping, business law, shorthand, etc., but also a thorough training in the general subjects of a high school course, including English, history, geography, mathematics, and even some science and a modern language, with still more advanced work in a college course.

In the senior classes of many of the public or elementary schools a little bookkeeping and some business papers are taught along with general work. In a few cities, such as Toronto, Hamilton and Ottawa in Ontario, some of these classes give a one or two years' course in bookkeeping, shorthand, typewriting and general work.

It is, however, in the high or secondary schools that progress has been made in this direction. Boards of Education provide, either free or at little expense, a two, three, or four years' commercial course to include the subjects already mentioned and also, in some schools, economics, commerce and transportation, money and banking, etc. In Ontario these classes are found as special departments in many of the regular high schools; in Toronto they centre in the High School of Commerce in three and four year courses. Similar classes obtain in Montreal, Halifax, Winnipeg, Victoria, Calgary and various other centres.

The private business schools, which give shorter selective courses, are to be found in all of the provinces. Short selective courses in various subjects as desired are also available in the high school and other evening classes.

The universities are now also providing courses in still more advanced commercial work. Toronto University has an Arts course in Commerce and Finance, and is also arranging a special leading to degrees in Commerce, differing from the Arts course in having a closer connection with the Commercial High School, and in offering subjects more directly bearing on commerce. Queen's University in Kingston has already a similar course in Commerce and Administration in which the degrees B.Com. and M.Com. are conferred; Queen's has also a very popular Bankers' course. McMaster and Western Universities contemplate similar courses. McGill University in Montreal has a School of Commercial Studies offering courses of the same nature.

Provincial Institutes of Chartered Accountants hold examinations in advanced accountancy and confer the degrees of C.A. and F.C.A. In Saskatchewan and Alberta the Chartered Accountancy is connected with the local Universities.

It will thus be seen that Canada is giving serious attention to this feature of the country's welfare.



A TYPICAL RURAL SCHOOL OF ONTARIO



A RURAL SCHOOL IN NEWLY SETTLED WESTERN PRAIRIE

Canada's Educational System

TECHNICAL EDUCATION

The passing of the Technical Education Act by the Dominion Government in 1919 has given a very decided impetus to vocational education in Canada. This Act provides for the distribution of \$10,000,000 to the nine provinces, covering a period of ten years, the division being made in proportion to population. Prior to the passing of this Act three of the provinces—Ontario, Quebec and Nova Scotia—had undertaken to develop a system of technical education and had made considerable progress. In less than six months after the passing of the Act all the provinces had taken action and vocational classes are now being opened in all cities and towns.

The system generally adopted is to establish (1) evening classes for all males and females over 16 years of age who are employed in industry during the day and who wish to improve their efficiency, and (2) day classes for all adolescents over 14 years of age. The evening classes are proving to be very popular as evidenced by the fact that on January 1st, 1920, there were over 30,000 attending these classes in Ontario. The day classes are intended to train for useful employment all those who have no inclination to continue at school beyond the age of compulsory attendance, which is 14 years in most of the provinces. These classes are either full-time or part-time, *i.e.*, the pupil must be in attendance during the full school period or he may spend one-half of his time in some employment and the other half at school. As it is generally conceded that the part-time system is the most effective, the Departments of Education in the various provinces are adopting this system in all cases where satisfactory arrangements can be made with the employers in the district. In the day schools the courses are arranged so that about 50% of the pupil's time is devoted to a practical vocational training, about 25% to related studies and the remainder to education for citizenship.

No satisfactory scheme for the training of teachers has yet been developed, but a proposal is now under consideration whereby all the provinces will co-operate in this very important part of the work.



LAKE CARRIERS ON THE KAMINISTQUIA AT THE HEAD OF THE GREAT LAKES

Canada's Financial Position

IN his budget speech of May last, the Minister of Finance, Sir Henry L. Drayton, said the net debt of Canada was \$2,273,000,000. He frankly reviewed the nature of the assets deducted from the gross debt of \$3,014,000,000, and eliminated those he did not consider to be active. Before the War, at the close of March, 1914, the gross debt of the Dominion was \$544,000,000 and the net debt \$336,000,000. The increase in the intervening period, due to the War, while serious, has not brought dismay to the Finance Minister. "All the financial difficulties of the moment," he said, "can be, and I have no doubt will be, readily met. I am confident that every honourable gentleman has the firmest belief and confidence in Canada—and that belief is well justified. Immigration and a reasonable investment of outside capital rendering our illimitable national resources available, but above all the national characteristics and strength of purpose of the citizens of Canada, will easily surmount the past, and Canada's situation to-day is indeed an enviable one. There is no country in the world that can offer greater inducements to the immigrant and greater inducements to foreign capital than Canada. . . . We have finished borrowing, and notwithstanding the great increase in our debt, Canada's securities to-day stand as high as or higher than those of any foreign country in what is to-day the great market for foreign securities—New York. Canada's world status to-day, notwithstanding her losses and war debts, is far greater than it was in 1914."

On March 31st, 1920, Canada's floating debt was \$88,956,000, of which \$74,000,000 shortly became due and for which provision has been made out of cash resources on hand. Of the funded debt, \$336,000,000 is payable in London, \$135,000,000 in New York and \$2,063,000,000 in Canada.

The Minister expressed the views of the business men of Canada when he, on the same occasion urged, that the duty to-day is not only to carry on the government of the country without any addition to the debt, but on the other hand to promote measures which will reduce the nation's obligations. Realizing that the task was a difficult one, he nevertheless regards it as being less severe than obstacles which the country overcame in the five years of war and stress. Of the achievements of the war period instanced by the Finance Minister, the maintenance of the volume and the increase in the value of the total annual trade from \$548,000,000 ten years ago to \$2,351,000,000 at the present time, is outstanding, and to this great increase the chief contribu-

Canada's Financial Position

tions were made by agriculture, forest, mineral, fisheries and manufacturing industries. These increases are dealt with under their respective heads in other parts of this volume.

Commodity prices, inflation in credit, and their consequences in Canada as elsewhere, are matters which are heeded by all thoughtful citizens. Closely allied to them is the state of the currency, which is thus referred to by the Minister:—

CURRENCY IN CANADA

"Our total issue of Dominion notes on March 31, 1914, was \$117,795,718. It reached a peak of \$337,319,309 in November, 1918, and on the 31st March, 1920, it amounted to \$311,932,791. Of this amount, \$128,366,066 is issued against gold. The amount of gold required under the Dominion Notes Act, as amended, to secure an issue of this amount, is \$90,866,066. Gold to the extent of \$100,286,280 is available. \$26,000,000 of the remainder of the currency was issued for national purposes under the authority of the Dominion Notes Act 1915, and secured as therein provided. \$50,000,000 was issued for the purpose of making advances to the Imperial Treasury and is secured by the pledge of approved securities, and \$107,566,725 was issued to the banks secured by approved securities largely consisting of Imperial Treasury Bills and our own Treasury Bills. As a result, there has been an increase since March 31, 1914, in the circulation issued by the Dominion of \$194,137,073.

"The banks' circulation on 31st March, 1914, was \$96,848,384. In November of the preceding year a high point of \$126,839,620 was reached. On the 31st March last it amounted to \$225,769,628. As against this increase, in the same period the holdings of the banks in cash reserves (gold and subsidiary coin) rose from \$45,661,913 to \$79,990,836, and the deposit of Dominion notes and gold in the Central Gold Reserves, earmarked for the redemption of the bank note circulation, rose from \$3,500,000 to \$108,200,000. In addition, the bank holdings in Dominion notes for general reserve purposes rose from \$96,227,321 to \$184,152,673.

"Tabulating for purposes of comparison the combined circulation of the country as of March 31, 1914, and the 31st March last, the result is as follows:—

	March 31 1914	March 31 1920
Dominion Note Circulation.....	\$117,795,718	\$311,932,791
Bank Note Circulation.....	96,848,384	225,769,628
	<hr/> \$214,644,102	<hr/> \$537,702,420
Less Dominion Notes held in Central Gold Reserves.....	3,500,000	97,700,000
	<hr/> \$211,144,102	<hr/> \$440,002,420

Canada's Financial Position

<i>Gold Held</i>	March 31 1914	March 31 1920
By Government.....	\$96,161,366	\$100,286,280
By Banks.....	45,661,913	79,990,826
In Central Gold Reserves.....	Nil	10,500,000
	<hr/> \$141,823,279	<hr/> \$190,777,106
Per Cent. of Total Gold to Total Outstanding Circulation.....	67	43

"As the statement shows, the combined circulation of the country amounted on March 31 last to \$440,002,420 as against \$211,144,102 on March 31, 1914, an increase of 108 per cent.

"Compare these increases with those of other countries. The Right Hon. Reginald McKenna recently stated that the circulation of Great Britain had increased 207 per cent. between 1914 and the end of 1919, while the circulation of the United States, as given in the report of the Secretary of the Treasury, shows an increase of 70 per cent. from June 30, 1914, to the corresponding date in 1919. The circulation of other countries taking a prominent part in the War has increased to far greater percentages.

"Unquestionably, the currency in light of former gold reserves is inflated. The fact, however, is that the world over, currency to an ever-increasing degree is related to movement of commodities, secured by a national guarantee supported by approved securities. This trend was apparent before the War. The best illustration is perhaps afforded by the Federal Reserve legislation of the United States. Under that legislation, currency issued by Federal Reserve Banks requires a gold reserve of 40 per cent. and no currency stands higher.

"Under all the circumstances, bearing in mind that Canada before the War had to borrow abroad to finance her own requirements, and bearing in mind that during the War and since the Armistice she has not only financed herself but has extended credits to other nations, the situation of the country's currency is remarkably good. The percentage of the gold reserves to the Dominion and bank note circulation is 43 per cent. The percentage of gold to the total circulation of Great Britain, based on 1919 figures, is 26 per cent. and of the United States approximately 55 per cent."

CANADA'S WAR CREDITS

Very soon after the outbreak of the War, Canada undertook to encourage the production of munitions of war within her territories, and this with other purchases made by Great Britain in Canada resulted in her advancing to the Mother Country the sum of \$997,339,901. As against these advances Great Britain defrayed the expenses of the expeditionary forces upon their



IN THE COMMERCIAL CENTRE OF TORONTO, KING AND YONGE STREETS

Subscriptions to Victory Loan in 1919 by Toronto citizens
aggregated \$160,000,000.

Canada's Financial Position

arrival in England or in France. There remains as yet a considerable balance in favor of the Dominion. It may be of interest, therefore, to enumerate as follows the principal services for which the advances to Britain were made:—

Imperial Munitions Board (British Ministry of Munitions)	\$699,174,124.89
Purchase of Canadian Cereals.....	173,500,000.00
Purchase of Dairy Products.....	34,753,801.51
Food Stuffs (other than Cereals)	25,500,000.00
Hay, Oats, etc.....	15,308,339.18
Timber.....	22,942,262.27
Purchase of Salmon Pack (British Columbia).....	8,750,124.22
Purchase of Rails.....	4,336,764.20
Royal Air Force.....	2,172,701.11

The Dominion Government also entered into agreements with the Governments of Belgium, Roumania, Greece and France, undertaking to advance \$25,000,000 in each case for the purchase of supplies, etc., in Canada on behalf of the said foreign countries. To 31st December, 1919, Belgium used this credit to the extent of \$1,734,295.39; Roumania, \$22,373,467.27; Greece, \$8,118,940.52; France, \$5,519,047.60.

The burden of carrying on the War rested on the shoulders of the Dominion Government. Voluntarily, however, the provinces expended considerable sums in encouraging enlistment and stimulating war effort. From this cause and that of generally increased cost of administration, their expenditure increased substantially during the later war years. They have been, however, successful in obtaining revenues equal to these expenditures and their financial position is to-day on a basis, relatively speaking, satisfactory. The following table indicates the current revenue and expenditure, during the past six years, of the nine provinces of the Dominion:—

Year	Revenue	Expenditure
1914.....	\$51,150,919.00	\$56,415,287.00
1915.....	49,910,743.00	55,617,537.00
1916.....	49,644,541.00	53,241,866.00
1917.....	57,962,979.00	59,710,666.00
1918.....	70,569,840.00	65,809,165.00
1919.....	76,306,044.00	76,625,211.00

As the urban centres of the Dominion have grown very rapidly during the past decade, it has been necessary to incur much municipal indebtedness which is represented by substantial permanent improvements. Speaking generally, however, the revenues of the towns and cities have been ample to meet maturing and current obligations. The exceptions are rare and are due to inflation of real estate values and over-expansion. At present, capital expenditures are on a limited scale, in keeping with a general determination to keep expenditures well within current revenues.



BARE PRAIRIE TRANSFORMED IN TEN YEARS INTO LUXURIOUS GARDEN AND SOD SHACK INTO SHELTERED COTTAGE

Immigration

DURING the world war, immigration to Canada, as was to be expected, was much less than for a period of several years prior to the outbreak of hostilities in 1914. Now that peace has come, there are indications that Canada will attract a constantly increasing number of settlers.

At present the Federal Department of Immigration and Colonization is encouraging only farmers, farm labourers, household workers and industrial workers (where necessary) to come to Canada. For anyone in the farming class or who intends to engage in an agricultural pursuit, there are exceptionally attractive opportunities in the Dominion, where 250,000,000 acres still await development. Of this substantial area 128,000,000 acres are located in the three provinces of Manitoba, Saskatchewan and Alberta. All free homestead lands within fifteen miles of the railways have been reserved for Canadian and Imperial soldiers who took part in the great war. There are, however, highly productive farm lands offered for sale at prices within the reach of a prospective settler's limited capital. Farm labourers and household workers are in demand in all parts of the Dominion at attractive wages. There are also many opportunities for the investment of capital in the development of the vast natural resources of the country.

The largest number of immigrants to enter Canada in one year came during the fiscal year ending March 31st, 1913, and marked a total of 402,432. The number who came from the British Isles in the year mentioned was 150,542, from the United States 139,009, and from all other countries 112,881. During the war years the lowest total was 48,537 in 1915-16 and the highest was 79,074 in 1917-1918. The majority of the settlers entering Canada while the war was in progress were English speaking farmers from the United States. The total immigration since June 30th, 1900, to March 31st, 1919, was 3,311,498.

In the calendar year 1919 immigration to Canada totalled 117,633, an increase of 67,393 over 1918. Only settlers of good health and likely to make creditable citizens are allowed entry. The vigilance of the officials of the Department of Immigration and Colonization is exercised at all points of landing and entry. During 1919 the total number of rejections was 20,708 and deportations numbered 652. The rejections were made chiefly on the grounds that the prospective immigrants were likely to become a charge on the Canadian public, or were either mentally or

Immigration

physically defective. The deportations were those who were criminals and of other undesirable classes.

There are attractive opportunities for millions of settlers in Canada, but as agriculture is the basic industry of the country, only those who will produce from the soil, household workers, and anyone with capital to extend desired development, are being encouraged as settlers by the Canadian Government.



One of several groups of champion teams turned out from Strathcona School, Winnipeg. Games help in the process of making real Canadians. In this group are boys who speak as their home language Russian, German, Hebrew, Polish, Ukrainian and Italian. Their school is the centre of a district in which about 5 per cent. of the residents speak English as their mother tongue.

Insurance

THE Confederation of the Provinces of Canada in 1867 was followed in 1868 by the enactment of the first Federal Insurance Act for the regulation of Insurance companies. Before Confederation the subject of insurance was regulated by the laws of the individual provinces but there is available no record of the volume of business transacted. In 1875 there was formed, under the Dominion Act, a Department for the supervision of insurance companies and the first Report of that Department was issued in the year 1876 covering the operations of the various companies for the year 1875. This Report contains also a summary of the business for the preceding six years, commencing with the year 1869. From this Report the following information is obtainable for the year 1869:

Life	Premiums Received	New Business Written	Amount of Insurance in Force
Canadian companies.....	\$164,910	\$1,156,855	\$ 5,476,358
British companies.....	515,741	2,627,392	16,318,475
Foreign companies.....	557,708	9,069,885	13,885,249
	<hr/> \$1,238,359	<hr/> \$12,854,132	<hr/> \$35,680,082

The number of Canadian companies transacting business in this year was 1, the number of British companies 14, and the foreign companies 9.

Fifty years later, in 1919, the record is very different. In that year the number of Canadian companies licensed by the Department was 26, the number of active British companies was 8, and the number of active foreign companies, 11. There were in addition 7 inactive British and 5 inactive foreign companies whose business is confined to running off old business in Canada.

The business was divided among the three classes of companies as follows:—

Life	Premiums Received	New Business Issued	Amount of Insurance in Force
Canadian companies....	\$47,323,371	\$314,489,448	\$1,302,626,562
British companies.....	2,202,512	10,724,872	66,909,143
Foreign companies.....	25,418,442	192,649,319	758,297,691
	<hr/> \$74,944,325	<hr/> \$517,863,639	<hr/> \$2,127,833,396

FIRE INSURANCE

The figures for the business of fire insurance during the fifty years are equally striking. In the year 1869 there were

Insurance

5 Canadian companies, 12 British companies and 3 Foreign companies, the premium income of Canadian companies being \$501,362, British \$1,119,011, and Foreign \$165,166, making a total of \$1,785,539.

In 1919 the Canadian companies numbered 28, the British companies 36 and the Foreign companies 52. The premium income of Canadian companies being \$6,398,098, British \$20,385,117, and Foreign \$13,131,183, making a total of \$39,914,398.

The experience of the various classes of companies for each decade of the half century is shown as in Appendix II.

There is also a substantial amount of fire insurance written each year in Canada in unlicensed companies, the amount of such insurance in 1919 amounting to approximately \$376,049,-237, according to returns made to the Department under section 129 of the Insurance Act.

The increase in the various branches of casualty insurance has shown a development in many cases far exceeding that of the life and fire branches. Many of the casualty branches have come into being during the fifty years. In fact, outside of life and fire insurance the only other branch of insurance which had attained to any material proportions fifty years ago was the business of marine insurance. Since then the following well defined classes of insurance have become well recognized. The premium income in each class for the year 1919 is also shown.

	Premiums Received
Accident.....	\$2,044,190
Combined Personal Accident & Sickness.....	966,422
Automobile (including fire risk).....	1,509,958
Automobile (excluding fire risk).....	1,902,906
Burglary.....	331,442
Liability.....	2,552,053
Explosion.....	514,808
Guarantee.....	1,137,585
Hail.....	2,745,642
Inland Transportation.....	288,011
Live Stock.....	98,599
Plate Glass.....	375,152
Sickness.....	1,311,496
Sprinkler Leakage.....	65,172
Steam Boiler.....	289,188
Tornado.....	75,647

Trust and Loan Companies

BEARING in mind the fact of Canada's population having increased from 5,322,000 in 1900 to 8,835,000 in 1920, and that within a period of fifty years a population of 2,000,000 has spread itself over 758,000 square miles of prairie and established there cities and towns with necessary equipment for well-ordered urban life, and lines of communication in the form of railways, roads, telephones and telegraph, it will readily be understood that a vast amount of capital from year to year has been necessary. While this development in new territory was in progress, expansion in the older provinces took place. In Eastern Canada the early settlers who held the territory as British subjects, conquered the wilds and made them yield satisfaction of their needs, without or with little external aid in the form of borrowed capital. It was only their hardihood, resourcefulness, boundless faith and loyal racial instincts that enabled them to conquer the primeval wilds and establish homes and organized society. It was centuries ere they could quicken progress towards conditions of greater comfort and well-being by borrowing capital from external sources. Frugality was never absent in those primitive times. Necessity aided in developing it and its natural corollary, resourcefulness. Settlements formed for protection and mutual assistance in the first struggles for subsistence, in time became cities of enterprise to and from which the emissaries of commerce moved freely, thus proclaiming mastery over the natural waterways and over the physical barriers to communication with every portion of the territory now included within the Dominion, and which is but 30,000 square miles less in extent than the whole of Europe. When this position was attained and the fruits of early industry and frugality were being exchanged for those of other countries in appreciable volume, it was then possible to facilitate progress by adding to the fund of loanable capital provided by the savings of the frugal settlers, a supply from available external sources in older communities. Not a century ago, in 1831, Lord Durham, Governor-General of Canada, speaking of conditions in Upper Canada, then the limits to which settlement had extended, said: "Its inhabitants, scattered along an extensive frontier with very imperfect means of communication and a limited and partial commerce, have apparently no community of interest or opinion. . . . A very considerable portion of the province has neither roads, post offices, mills, schools or churches. . . . The people may raise enough for their subsistence, and may even have a rude and comfortless plenty, but they can seldom acquire wealth." With this glimpse into the past, not so far distant, we can by contrast with conditions to-day realize the extent of the change wrought, and the part played in effecting that change by

Trust and Loan Companies

those financial agencies which made it possible for the individual to borrow and transform "comfortless plenty" into plenty of another kind, . . . one that has in large measure brought comfort and made it available to Canadian homes.

Many years subsequent to the period referred to, the institutions through which the people of Canada have largely obtained capital, and through which it has been gathered together for investment in homes and homesteads, took root and through changing periods fraught with trying experiences emerged in their present varied forms. It is the purpose in this article to deal briefly with two only—those known as trust and mortgage loan companies. Each class has units varying in their policy and character, but they have as a whole attained a stability which has made them a factor of the utmost importance in the development of the country. They not only command the confidence of those citizens of the Dominion who "accumulate wealth" (and they are not now "seldom" to be found as in the days of Lord Durham) but what is of equal importance, they command the confidence of many of those abroad, especially in the United Kingdom, who "accumulate wealth." Through their agency a vast amount of capital has been found for investment in permanent improvement of rural and urban equipment which has transformed "rude and comfortless plenty" into a plenty of culture and comfort. The process—that of extending to new territory the equipment necessary to existing ideals of life—is in Canada still proceeding and with it a continuing demand for capital, in providing which there is the opportunity of continued service for the mortgage and loan and trust companies. The extent of this service may be gathered from the following summary of the assets and liabilities of these classes of Canadian institutions:—

MORTGAGE LOAN COMPANIES

1920

LIABILITIES

Shareholders' Capital Stock, Reserves and Balance.....	\$108,000,000
Deposits, Debentures and other Liabilities to the Public.....	162,000,000
	<hr/>
	\$270,000,000

ASSETS

Debts secured by mortgages on land.....	\$181,000,000
Government and Municipal Debentures.....	20,000,000
Other stocks, bonds and securities.....	14,000,000
Cash in hand and on deposit.....	15,000,000
Freehold land.....	5,000,000
Other Assets.....	35,000,000
	<hr/>
	\$270,000,000

Trust and Loan Companies

TRUST COMPANIES

LIABILITIES

Shareholders' Capital Stock, Reserves and Balance.....	\$ 26,000,000
Other liabilities on Capital Account.....	6,000,000
Contingent Liabilities, including funds accepted in trust and guaranteed, and estates under administration.....	507,000,000
	<hr/>
	\$539,000,000

ASSETS

On Capital Account:—

Debt secured by mortgages on land.....	\$ 9,500,000
Interest.....	750,000
Government and Municipal Debentures.....	2,500,000
Other stocks and bonds.....	6,000,000
Office Premises.....	2,750,000
Cash on hand and on deposit.....	2,300,000
Other Assets.....	8,200,000
Assets held in trust.....	507,000,000
	<hr/>
	\$539,000,000

TRUST COMPANIES

In Canada trust companies have developed along lines suitable to the country. It need hardly be argued that the corporate, generally speaking, has advantages in point of efficiency over the private trustee. It is not for that reason alone, however, that trust companies in Canada, after their institution not more than half a century ago, rapidly developed. It was found that estates which fell into the hands of the Court could be handled more satisfactorily by a reputable and trustworthy private organization than by using the cumbersome machinery of the State. Following initial steps in this direction, it was readily realized that the trust company could handle private estates before or after death of the owner satisfactorily. On the other hand, in a new country to which many people were coming and settling, the selection of suitable private executors was often difficult and those upon whom reliance could be placed were frequently averse to accepting the responsibility. As shown in the summary statement, trust companies are administering assets of \$539,000,000, a large proportion of which is in the form of loans to farmers and home-builders and another large proportion in the form of loans to municipalities and governments.

Trust and Loan Companies

MORTGAGE, LOAN AND SAVINGS COMPANIES

On the other hand the mortgage, loan and savings corporations have given service equally as important—in urging the people to save and deposit their money with these companies, and by giving the assurance that such money would be invested in securities that could not be questioned and these are largely mortgage loans. Prudence demanded that when deposits were received, there should be held against them a certain proportion of liquid assets and these take the form of government and municipal securities.



SAMPLE PLOTS OF NEW CROSS-BRED VARIETIES OF CEREALS AT THE
CENTRAL GOVERNMENT EXPERIMENTAL FARM

External Trade of Canada

EVIDENCE of national progress in many directions is found in the history of the external trade of Canada. Last year, that is, for the fiscal period ending March 31st last, the total trade was \$2,304,008,267, excluding coin and bullion and exports of foreign produce. Going back to Confederation, we find it was then \$120,000,000. In the intervening years between 1867 and 1920 there has been a very great expansion, quite as much so, proportionately speaking, as in older and more highly developed countries where external trade is relatively a more important factor in the maintenance of social well-being. As Canada's external trade developed, her people became wealthier, and to the cultivation of her fields and the exploitation of her great resources there was applied more efficient machinery in the form of implements and commercial organization. Her steadily increasing foreign trade facilitated very markedly this development. As in her earliest days London was the chief market for the furs, then her outstanding product, the United Kingdom in recent years has been the chief purchaser of her more varied products. In the last fiscal year ended March 31st, 1920, out of products to the value of \$561,787,159 exported to all parts of the Empire, the mother Kingdom took \$498,151,806.

Foreign countries absorbed \$677,704,939, of which \$464,029,014 represented the proportion taken by the United States. In 1914, the year preceding the war, the total exports amounted to \$431,588,439, of which the Empire took \$238,642,517 and the rest of the world \$192,945,922.

Of imports the greater part has come from foreign countries, particularly the United States alongside Canada's long southern boundary. Of a total of \$1,064,516,169 in 1920, countries within the Empire supplied \$174,172,353 and those without, \$890,343,816. Of the latter the United States' proportion was \$801,702,720.

These figures indicate the trend of recent trade and it has not materially changed during the course of the last fifty years. Long before the war a very general desire existed to increase trade with the mother Kingdom which found expression in tariff preference. This, however, failed to materially alter a trend which is a natural result of the geographical relationship of Canada to the United States and the ease of intercourse which it permits between the peoples of both countries.

In the appendices* details of external trade are given in tabular form. They indicate the chief articles of trade, and regarding those exported, further information may be found in sections of this volume dealing specifically with Canada's chief products and industries.

*See Appendices VI to IX inclusive.



SECTION OF WATER FRONT, MONTREAL,
whose exports of merchandise for 1919 amounted to \$352,648,960.

Canada's Commercial Intelligence Service

THE Commercial Intelligence Service of the Department of Trade and Commerce is designed to promote the sale of the products of Canadian factories, farms, forests, fisheries and mines in countries overseas by furnishing information to importers in distant lands about the resources and products of Canada, while at the same time making Canadians acquainted with the demand for various products in other countries and all conditions affecting their sale.

The officers of the Commercial Intelligence Branch stationed abroad include trade commissioners who devote their whole time to the service, and commercial agents or correspondents who may engage in business on their own account, but are allowed a small salary for certain services rendered. From time to time special trade commissioners are sent abroad for the purpose of commercial investigation in connection with some special branch of Canadian trade.

An important part of the work of Canadian trade officials consists in the preparation of reports reviewing the possibilities for trade with the countries in which they are stationed. These are carefully edited at the head office of the Commercial Intelligence Branch and are published in the *Weekly Bulletin*, together with other matter judiciously selected from foreign trade journals, statistics of Canadian trade, Canadian grain statistics and crop bulletins, extracts from British and foreign consular reports and miscellaneous articles of interest to those engaged in export trade.

TRADE INQUIRIES FOR CANADIAN PRODUCTS

In each number of the *Weekly Bulletin* there are published trade inquiries for Canadian products received by the Canadian Trade Commissioners and commercial agents from importing merchants in the various countries where Canada has representatives. These inquiries are numbered, and the address of the inquirer and other particulars are furnished to any manufacturer or merchant interested on application to the Commercial Intelligence Branch, Department of Trade and Commerce, Ottawa.

By watching the trade inquiries every week many Canadian firms have made overseas connections by means of which they are developing export business that promises to equal and in some cases exceed their home business.

Canada's Commercial Intelligence Service

Merchants in all countries where Canadian Trade Commissioners and Commercial Agents are located will find these agencies of advantage in placing them in touch with Canadian exporters or importers of goods in which they are interested.

It is now the policy of the Department to have Canadian Trade Commissioners make periodical visits to Canada for the purpose of becoming acquainted with the changing conditions of a rapidly developing country and in order that they may keep in personal touch with Canadian manufacturers and export merchants.

The policy has been adopted of specially training young university graduates for the Commercial Intelligence Service. While in training they are known as sub-trade commissioners. They are first given a course of education in the office work of the Commercial Intelligence Branch of the Department of Trade and Commerce. After about a year and a half of such training they are sent through the country to call on the leading Canadian manufacturers, study the industries of the country and ascertain what Canadian products are available for export. They are then expected to prepare a report describing what they have learned about the industries of the country, after which they are sent abroad as trade commissioners. Since the conclusion of the war it has been decided that applicants for the position of sub-trade commissioner must be returned soldiers as well as university graduates.

EXHIBITS AND PUBLICITY BUREAU

An Exhibits and Publicity Bureau has been established in Ottawa in connection with the Commercial Intelligence Branch. In the Bureau are placed samples of manufactured goods in demand in the different countries where Canada has Trade Commissioners. These officials are instructed to secure samples of as many of the articles as possible for which they have inquiries from importers. Already a considerable number of samples have been received.

A moving picture plant has been installed in the Bureaus for the purpose of preparing moving pictures of all the industrial activities of Canada from the Atlantic to the Pacific. The films will be used to advertise Canada in every country where there are Trade Commissioners* who will arrange for their exhibition. Already some of these moving pictures have been shown in Australia, New Zealand, South Africa, South America, the United Kingdom, France and the United States.

*A list of Canadian and British Trade Commissioners will be found in Appendices XXII and XXIII.

British Trade Commissioners

ACTING on a suggestion made at the Imperial Conference in London in 1907, the President of the British Government Board of Trade appointed four Trade Commissioners to the Overseas Dominions, one being stationed in Canada with headquarters at Montreal. After visiting all of the British Dominions and studying trade prospects and kindred matters, the Dominions' Royal Commission in its report on Canada and in its final report issued in March 1918, recommended the extension of Great Britain's Trade Commissioner service not only in Canada but in other parts of the Empire. As a result Canada was allowed four Commissioners, instead of one as formerly. The senior Commissioner is located at Montreal and Commissioners are stationed at Toronto and Winnipeg while a fourth will probably be placed at Vancouver.

The British Trade Commissioners in Canada carry on duties similar to those performed by the Canadian Commissioners in other parts of the Empire, as hereinbefore outlined, under the direction of the British Government's Department of Overseas Trade, London, England.



A Falls on Beaver River,
Ontario



GRAIN ELEVATORS AT FORT WILLIAM



This Elevator at Fort William is one of thirty located there and at Port Arthur, with aggregate storage capacity of over 54,000,000 bushels.

Banking and Currency

COMMERCIAL banks in Canada are required to obtain a charter from the Dominion Government before commencing business, and operate directly under the Government supervision. The Bank Act of 1910 provides for a shareholders' audit by Accountants approved by the Minister of Finance. The Minister can, at any time, call for special returns from any of these auditors. In addition, the banks are required to make to the government monthly returns showing the assets and liabilities in detail; monthly returns of note circulation; quarterly returns of interest and discount rates charged to the public, and yearly returns of statements submitted to shareholders; real and immovable property held and amount at which it is carried on the books of the bank; list of shareholders and list of unclaimed balances, unclaimed dividends and unpaid cheques outstanding and in which no transaction has taken place for a period of five years. The Bank Act is subject to revision every ten years, at which period the bank charters expire, and this decennial period is chosen for revising and strengthening the provisions, as shown to be necessary, either in eliminating faults or in adding necessary new features and restrictions.

BANK NOTE CIRCULATION

The circulation of each bank is restricted to the amount of its unimpaired paid-up capital, excepting during the period known as "The Grain Movement Period" or from September 1st to March 1st in each year, during which time the banks may issue additional notes up to 15% of their unimpaired paid-up capital and reserves. The banks, however, have to pay to the Dominion Government 5% interest on any excess circulation issued over and above their unimpaired paid-up capital, which ensures its immediate retirement when the seasonal need for its use has passed.

Since 1914 the banks have been granted this extra privilege for the whole of the year, under the provisions of the Finance Act, 1914, which was continued in force until 1921 by Legislation passed in 1919. In addition, under the Act of 1910 the "Central Gold Reserve" was created, under which the banks may deposit with the Trustees of this Reserve, gold or Dominion Notes for any amount, and may issue additional notes of their own bank for an equivalent amount of the deposit, without payment of any interest to the government.

Monthly returns of assets and liabilities of the various banks are published in the *Canada Gazette* for the information of the

Banking and Currency

public, and a rigid system of penalties created, ranging from a slight fine to cancellation of charter. These penalties are imposed for any infraction of the law. Arrangements are made by which notes of every bank are redeemable at par in any part of the Dominion, and system of virtual insurance is provided under the Bank Circulation Redemption Fund, by which all banks pay into the government 5% of their average yearly circulation and this fund may be called upon at any time to insure that notes of failed banks shall be redeemed at par to the holders.

LIQUID RESERVES

All banks are required to hold a certain amount of legal tender and Dominion Notes (not less than 40%). No limit as to the amount of specie to be held by the bank is set by the government, but the banks themselves, by virtue of their strong conservative management and the advisory supervision of the Canadian Bankers' Association, maintain in practically every case a very strong specie reserve. In addition to all assets, note holders and depositors, have as security the liability of shareholders not only to the amount of their subscribed capital, but to double that amount.

Under the provisions of the Special War Revenue Act, 1914, which Act is still in force, the banks are obliged to pay a tax equal to one-quarter of one per cent. quarterly upon the average amount of the notes of the bank in circulation, provided that where the note circulation exceeds the amount of the paid-up capital, the paid-up capital shall be the basis for determining the tax to be paid.

DOMINION NOTES

In addition to the notes issued by the chartered banks which are for denomination of \$5.00 and over, the Dominion Government issues notes of \$5.00 denomination and all notes under that amount, also bills of a larger denomination issued to banks for legal tender purchases only. The provisions of the Dominion Notes Act of 1914 provide that Dominion notes may be issued and outstanding at any time to any amount, and that such notes shall be legal tender in every part of Canada, except at the offices at which they are redeemable. This act, however, states that the Minister of Finance shall always hold as security for the redemption of Dominion Notes up to and including \$50,000,000 issued and outstanding at any one time an amount equal to not less than 25% of the amount of said notes in gold. Any further issue requires an equal amount of gold to be held.

In 1915 there was an amendment to the Dominion Notes Act, increasing the amount to be issued against 25% of gold by

Banking and Currency

\$10,000,000 and also providing for the issue of \$16,000,000 Dominion Notes against certain Dominion Government guaranteed securities floated by the Canadian Northern Railway and Grand Trunk Pacific Railway Companies.

Under the Finance Act of 1914 provision was made for making advances to the Canadian Chartered Banks against approved securities. A statement of the issue of Dominion Notes is published in the *Canada Gazette* monthly, which shows the amount of notes issued against gold held, also notes issued against approved securities. The Treasury Board in all cases approve of the securities to be deposited by the banks, and also fix the necessary margin to be held over and above the amount of advances.

Dominion Notes are not put in circulation by the Dominion Government directly, but through the banks, who obtain them from the Assistant Receivers General, of whom there are nine in the principal cities of Canada. These officers attend to the distribution of the specie and small notes and collection of the latter when mutilated or recalled from circulation.



A Nova Scotia Poultry
Plant



CARROT SEED CROP



MANGEL SEED CROP

Results of experiments in growing seeds at the Experimental Station, Summerland, B.C., are exceedingly promising.



Agriculture



THE rapid progress of agriculture in Canada is shown in the series of tables given as appendices. The area in field crops was stationary between 1880 and 1890, but the progress thereafter was rapid, exceedingly so between 1910 and 1919 when, of the 358 million acres of estimated cultivable land in Canada, 53 million were actually in crops. It is estimated that not more than

31% of the land available for cultivation is at present occupied.

Apparently between 1910 and 1919 the area in wheat and barley more than doubled; in oats, mixed grains, flax and potatoes it nearly doubled; and in rye was nearly seven times as great; moreover, the area in fodder crops was very substantially increased.

There has been a remarkable development of the area sown to wheat, which has multiplied nearly six times within the present century. The production has varied with the seasons, and the last three seasons have been particularly unfavourable. The acreage of 1919, with the average yield per acre of 1915, viz., 26 bushels, would have produced about 500 million bushels of wheat, so this figure may well be reached any year in the near future. This result will be chiefly from development in the western wheat fields.

Because of the fact that the yield of wheat is uncertain and that its long-continued cultivation impairs the fertility of the soil, Canadian farmers are following more and more the advice of agricultural leaders who are encouraging mixed farming and the well ordered breeding of a high quality of live stock. In the breeding of live stock there has been rapid progress since 1910. Attention is directed to the ebb and flow of our exports of live animals* and for the period of the war and 1919 the rapid expansion in our exports of meats.* The period from the beginning of the century to the outbreak of the war was marked by a large im-

*See Appendices XIII and XIV.

Agriculture

migration and extensive railway construction, entailing a more considerable meat consumption within the country and leaving but a small balance for export. For the last two years the exports of live stock and meats vie with the exports of wheat in maintaining Canada's favourable balance of trade and paying Canada's national indebtedness.

A few figures will illustrate the significance of this statement. Between 1914 and 1919 the exports of animals and animal products rose from a value of \$53,000,000 to \$198,000,000. In the latter year \$50,000,000 worth of these products represented live animals and \$41,000,000 dairy products.

During the war period the development of the live stock industry was considerable in the whole of Canada; satisfactory in the eastern provinces, but particularly striking in Western Canada. Speaking of Western Canada in particular, and comparing the holdings of 1914 with those of 1919, there appears in cattle an increase of 98%, in sheep 119%, and in swine 15%.

For the whole of Canada there has been a substantial expansion of the values of Canadian agriculture. The patriotism of the people, high prices, the powerful stimulus of the Farmers' Associations and of governments, have conspired to bring about these satisfactory results. Throughout the war vigorous campaigns for greater and better production were carried on by the Farmers' Associations and the various governments.

There was a marked increase of government expenditure in aid of agriculture during this period. In 1909-10 the Provincial Governments together spent \$1,791,702, whereas in 1917-18 their expenditure had risen to \$3,343,402. The Dominion Government's figures rose from \$938,378 in 1909-10 to \$3,816,018 in 1917-18, including \$1,070,854 spent under the Agricultural Instruction Act of 1913.

In respect to agriculture, the Canadian Constitution does not sharply define the attributes of the Dominion and Provincial Governments. Broadly speaking, the Dominion looks after the trade through various branches of the Department of Agriculture, and deals with experimentation through the Experimental Farms. The provinces specialize in agricultural education and in valuable college extension work through resident county representatives. The Dominion Government facilitates and watches with particular solicitude the marketing of field and dairy products. The Dominion Minister of Agriculture has introduced and effectively supports a forward policy of live stock improvement and marketing which is already giving and promises in the near future striking results.

Fisheries

THAT Canada possesses exceptional fresh and salt water fishery resources is well known to those acquainted with the fishing industries of the world. From the inshore areas of salt water are taken the whole of the landings of salmon, lobster, herring, mackerel, and sardines, more than half of the landings of cod and haddock, and nearly all the landings of hake and pollock. Very considerable quantities of these are taken, with little effort, inside the innumerable natural harbours and coves which characterize the coastline of Canada. From the numerous Canadian rivers and fresh water lakes are taken large quantities of the many species of excellent food fishes with which they are stocked.

The inshore fishing grounds of Canada on the Atlantic coast extend from the Island of Grand Manan in the Bay of Fundy to Labrador. This stretch, including the larger bays and indentations, represents a coastline of over 5,000 miles. In addition to this, the great fishing banks of the western Atlantic lie within easy reach of the fishing ports of eastern Canada.

In the interior there are lakes which in the aggregate cover upwards of 200,000 square miles, equal to half of the fresh water area of the globe. The fishery resources of many of those lakes in the northern parts of the Prairie Provinces have not yet been touched. On the Pacific, well-sheltered fishing areas extend along a much-indented coastline for over 7,000 miles.

The off-shore fishery of the Atlantic coast is prosecuted in sailing vessels of from sixty to one hundred and twenty-five tons, carrying from fifteen to twenty-five men, who fish with hook and line. The fish taken by sailing vessels consist mainly of cod, haddock, hake, cusk, pollock and halibut. Steam trawlers of approximately one hundred and fifty feet in length are also operated from Nova Scotian ports. These catch all the kinds taken by sailing vessels and various kinds of flatfish as well.

The inshore, or coastal fishery, is carried on in small open boats usually motor-driven, with crews of from two to three men, also in a class of small vessels or decked boats with crews of from four to seven men.

The means of capture used by boat fishermen are gill nets and baited hooks and lines, whilst trap nets, haul seines, and weirs, are operated near the shore. The commercial fishes taken inshore are cod, haddock, hake, pollock, cusk, herring, mackerel, alewife, shad, smelt, flounder, dab, swordfish, albacore, and sardine, the last a young herring.



A scowload of salmon landing at cannery in British Columbia, which province's fish production was valued at \$25,000,000 in 1919.



DRYING FISH AT A MARITIME PROVINCE FISH FACTORY
The value of Canada's fish production in 1918 was \$80,250,544.

Fisheries

The most extensive lobster fishery in the world is carried on along the whole length of the Atlantic coast of Canada. There are beds of excellent oysters in many parts of the Gulf of St. Lawrence, especially on the shores of Prince Edward Island. Beds of very fine scallops exist in Mahone Bay, Lunenburg County, Nova Scotia, also at Campobello Island, New Brunswick, while clams of various kinds abound upon all parts of the coast.

The inland fisheries are carried on by means of open motor boats and by steam tugs of from fifty to seventy feet in length. In winter, fishing is carried on through the ice in the lakes of the Prairie Provinces. Gill nets, pound nets, seines and hooks and lines are used in the inland fisheries, and the chief commercial kinds taken are whitefish, trout, pickerel, pike, and fresh water herring.

On the Pacific coast, the fishery, owing to the predominance of salmon, is mainly an inshore one, and is prosecuted mostly in open motor boats by means of gill nets, trolls, and seines. An extensive halibut fishery is carried on, however, in the northern waters of British Columbia, in large well-equipped steamers and motor vessels. Herrings are very plentiful all over the Pacific coast of Canada. Pilchards of a splendid quality abound on the west coast of Vancouver Island, while the common cod, black cod, and flatfish are taken in large quantities in the northern waters especially.

In the year 1918, the latest for which official returns are completed, the total value of the fisheries for the whole of Canada was \$60,250,544, which sum exceeded the value for the preceding year by almost \$8,000,000. The various provinces contributed to the total value in the following orders:—

British Columbia.....	\$27,282,223
Nova Scotia.....	15,143,066
New Brunswick.....	6,298,990
Quebec.....	4,568,773
Ontario.....	3,175,111
Manitoba.....	1,830,435
Prince Edward Island.....	1,148,201
Saskatchewan.....	447,012
Alberta.....	318,913
Yukon.....	37,820
	<hr/>
	\$60,250,544

Fisheries

The following table shows the quantity and the value of the commercial fishes, which give a value of a million dollars and upwards:—

	Cwts.	
Salmon.....	1,531,773	\$17,869,517
Cod.....	2,206,666	10,083,562
Halibut.....	207,139	5,490,226
Herring.....	1,973,669	4,719,561
Lobster.....	264,096	3,531,104
Haddock.....	554,366	2,796,171
Sardines.....	295,770	2,320,513
Mackerel.....	196,781	1,937,211
Whitefish.....	205,044	1,927,863

The number of persons engaged in the primary operations of the industry, i.e., fishing, was 68,516, and in the cleaning, curing and canning of the fish, 18,554, giving a total of 87,070 directly employed.

The capital invested in boats, vessels, and the various kinds of fishing gear amounted to \$29,887,734, while that invested in canning and curing establishments amounted to \$30,334,129.



GRAND FALLS

An undeveloped power resource on St. John River, N.B.

Forests

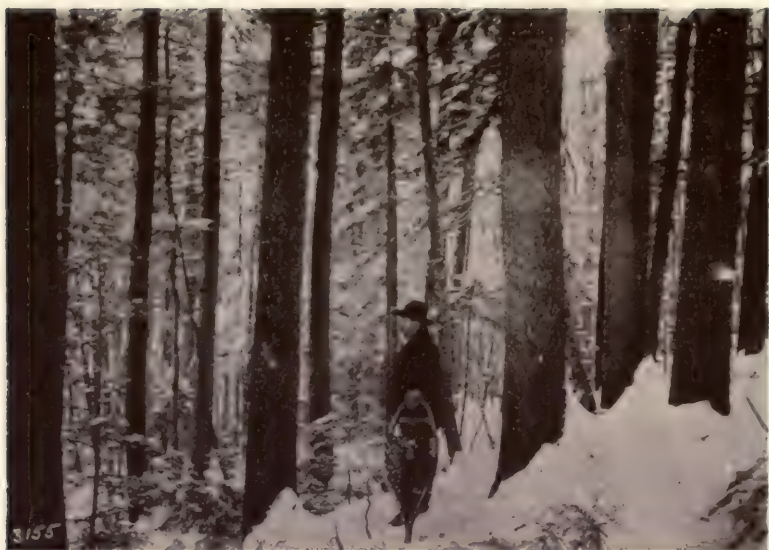
FORESTS of Canada cover a large proportion of her total land area, but only a part of this wooded area is of commercial value at the present time. Large areas cleared for settlement will continue to be used for agricultural purposes, where the soil proved to be fertile.

Of forest area which may be classed as commercially valuable at the present time, there is a dearth of accurate information. Systematic surveys of certain regions and estimates of timber have been made by individual timber owners but so far no comprehensive investigation has been made of the forest resources of the entire Dominion. Some estimates are undoubtedly based on careful observation and sound judgment and if we take an average of those available from the optimistic to the pessimistic, we arrive at a figure which is, in any event, the best figure available. In accepting such a figure, the fact should be borne in mind that a great part of our wooded area has not yet been explored, let alone estimated.

Canada's commercially valuable timber area covers an area of approximately 250,000,000 acres and contains from 500,000,000,000 to 800,000,000,000 feet board measure of timber suitable for sawing into lumber, and from 800,000,000 to 1,000,000,000 cords of smaller material suitable for manufacture into pulp. There are also a number of other forest products of the primary class such as railway ties, poles, piles, posts, rails and billets of sizes demanded by special industries, which, if utilised, may add to the area classed as commercially valuable. The sizes of timber which are considered as merchantable vary for different parts of the country, for different species, and for the different purposes for which the timber can be used. An arbitrary division at a diameter of ten inches has been made between pulpwood and saw logs but this is not applicable to every region.

The following table is a preliminary statement of the lumber cut, by provinces, in Canada during 1918:

	Quantity 1,000 ft. B.M.	Value at Mill.
Ontario.....	1,182,328	\$33,165,137
British Columbia.....	1,141,197	27,992,976
Quebec.....	841,084	20,916,604
New Brunswick.....	439,256	12,189,312
Nova Scotia.....	166,332	4,089,039
Saskatchewan.....	75,835	2,122,307
Manitoba.....	54,047	1,240,052
Alberta.....	22,388	473,694
Prince Edward Island.....	6,393	136,336
Yukon.....	229	10,315
Total.....	3,929,458	\$102,335,772



A TYPICAL STAND OF WHITE PINE IN NORTHERN QUEBEC



HEAVY STAND OF DOUGLAS FIR, HEMLOCK AND CEDAR

Canada's commercially valuable timber area is approximately 250,000,000 acres.

Forests

This industry has a capital investment of \$180,017,178 and provides work for 60,366 employees whose total salaries and wages in 1918 amounted to \$49,402,652. It is represented by 3,086 operating plants of all sizes from small custom mills to large establishments, producing over half a million feet a day.

The timber sawn includes the wood of over seventy different species of trees of commercial importance. The more important of these are: Spruce, 5 species, representing 35 per cent. of the total lumber cut; white pine, 2 species, 20 per cent.; Douglas fir, 1 species, 17 per cent.; hemlock, 2 species, 8 per cent.; cedar, 2 species, 4 per cent.; red pine, 1 species, 3 per cent.; balsam fir, 4 species, 3 per cent.; yellow pine, 1 species, 2 per cent.; hardwoods, 46 species, 3.5 per cent.

The pulp and paper industry in Canada consumed 2,210,744 cords of Canadian pulpwood valued at \$24,886,475 at the mill and produced for use, sale and export, 736,609 tons of wood pulp valued at \$41,302,882. In addition to the pulpwood consumed by Canadian pulpmills, there was produced in Canada in 1918 1,349,565 cords of pulpwood valued at \$12,999,887, which was exported almost entirely to the United States. The total production in 1918 was, therefore, 3,560,309 cords valued at \$37,-878,362.

Spruce is the most important pulpwood in Canada and was used by Canadian pulpmills to the extent of 1,638,733 cords in 1918. Five species of spruce contributed 72 per cent. of the wood used for pulp; balsam fir, 4 species, 20 per cent.; hemlock, 2 species, 4 per cent.; jack pine, 1 species, 2 per cent.; poplar, 5 species, 1 per cent.

These are the two important industries wherein forest products form the chief raw material used.





ONE OF THE MANY LARGE LUMBER MILLS IN BRITISH COLUMBIA
Value of Canada's mill cut in 1918 was \$146,330,192.

Fur and Game Resources

EVER since the Company of One Hundred Associates commenced operations early in the 17th century, Canada has been one of the world's most important sources of fine raw furs. Owing to the rigorous climate in which they are produced, the pelts of Canadian fur-bearers compare favourably with those of any other country. This circumstance led to a persistent and rapid exploitation of the trade and in order to assure its perpetuation, restrictive legislation has long been in force in every province of Canada. The increasing demand for fine furs in Europe and America has gradually forced home the truth that no restrictive legislation short of complete protection can afford an adequate safeguard against depletion. To forestall such a contingency, in part at least, the breeding of fur-bearers in captivity was undertaken. Although only about ten years old, the Canadian fur farming industry is the largest in the world. It had its beginnings in Prince Edward Island but has spread to every province and should do much to retain for Canada her premier position as a fur-producing nation.

Until the outbreak of war in 1914, by far the greater portion of Canada's raw furs found their way to the markets of Britain, Germany, Russia and the United States. But as climatic conditions make the use of furs in Canada practically a necessity, many of these furs were re-imported at greatly increased prices after they had been dressed. Consequently the trade balance with respect to furs was long unfavourable to Canada. As late as 1913, the adverse fur trade balance reached \$2,578,532. By 1919 it was changed into a favourable balance of \$9,214,584, the exports for the latter year being \$13,737,621 and the imports \$4,523,037. However, the enterprise of Canadian furriers has done much to change this and a flourishing fur dressing and manufacturing industry has been developed. The establishment of a Fur Sales Board in Montreal during the present year will serve to further strengthen the trade in Canada.

The present-day demand for furs may be judged from the fact that at the April fur auction in London this year no fewer than 8,780,582 pelts were offered for sale. Moreover, Canada's exports of furs during the past fiscal year exceeded any in her history. More than 12,700,000 pelts were exported to the United States, but this figure included large numbers of Australian rabbit skins and some 250,000 sheep skins from Australia, New Zealand and Peru.

Canada is fortunate in the matter of birds. More than 2,000 species and sub-species spend at least a portion of the year in

Fur and Game Resources

Canadian woods and waters. The greater number are, of course, migratory, but practically all of them are of great value to agriculture and horticulture.

From the point of view of game, the fur-bearers and birds of Canada are of great value. The moose hunting grounds of Eastern Canada, the duck hunting of the Prairies, Ontario and Quebec, and the bear and mountain sheep of British Columbia attract hundreds of hunters from other countries every year. Direct revenue from the sale of non-resident licenses or the rental of hunting grounds is derived by each of the provinces, in addition to large sums expended in the country by non-resident hunters and also by tourists who come, not to kill, but to see wild life in its native haunts.



Mineral Resources and Mining

WITH a population but little larger than that of London, and the territory of an Empire, the Dominion of Canada has already developed a mining industry that has drawn world-wide attention to her mineral resources. In variety of metals and minerals found Canada rivals any of the world's great geographic groups, and the public records clearly show her pre-eminent position as a potential source of vast mineral wealth.

Long before the greater production created by the war, this country had already become the world's principal source of nickel, asbestos and cobalt and an important producer of gold, silver, copper, lead, zinc and a number of rare metals. Few countries possess greater coal resources and the Canadian production of arsenic, chromite, feldspar, graphite, gypsum, mica, magnesite, pyrites and talc, stand high in records of world's production. The mining areas of Cariboo, Klondike, Rossland, Sudbury, Cobalt, Anyox or Granby Bay, Porcupine, and more recently the newer gold areas in Ontario, and the copper-gold-silver camps in Northern Manitoba, Flin-Flon and Mandy, have become familiar names in the world's money markets. The advent of discovery of each new mineral district has been followed by great stimulation in mining activity and production, which, supplemented by the more prosaic mining of coal, asbestos, gypsum, salt and the numerous other non-metallic products, has resulted in the rapid increase in the total annual value of Canada's mineral production during the past thirty years briefly shown below. The close of the war has naturally been followed by a year of semi-stagnation, during a necessary period of re-adjustment, in the production of such metals as nickel, copper, lead and zinc as well as in other minerals which is reflected in the lessened production recorded for 1919.

ANNUAL VALUE OF MINERAL PRODUCTION

	Metallic	Non-Metallic	Total Value	Value per Capita
1889.....	\$ 3,251,299	\$ 10,762,614	\$ 14,013,913	\$ 2.96
1899.....	19,651,182	29,582,823	49,234,005	9.27
1909.....	44,156,841	47,674,600	91,831,441	13.70
1914.....	59,386,619	69,476,456	128,863,075	15.96
1918.....	114,549,152	96,752,745	211,301,897	24.59
1919.....	72,401,829	100,674,084	173,075,913	....

The greater part of Canada is unprospected, and much of it even unexplored, yet sufficient is known of its geological structure to justify forecasts as to its mineral wealth. The rock structures of the country fall naturally into a number of broad geological



INTERIOR OF CUPOLA BUILDING OF AN ONTARIO NICKEL REFINERY



GENERAL VIEW OF SURFACE PLANT OF A NORTHERN ONTARIO MINE
Hoisting capacity 5,000 tons per day.

Mineral Resources and Mining

provinces, or regions, of which the general outlines may be recognized. Their southern portions, at least both in Canada and the United States, have been more or less developed, demonstrating their mineral possibilities, and it is fair to assume that in the northward unprospected extensions of these provinces, the mineral deposits will, in some measure, be repeated. Such an assumption is justified by a comparison of the results already obtained in the frontier camps, with the corresponding stage in the development of the older mining districts of Canada and the United States in the same geological province, through the discoveries that have followed upon the opening up of each new section, and by the fact that geological explorers report the occurrences of the same minerals and the same geological conditions in the north that characterize that particular region in the south.

EASTERN CANADA

The south-eastern portion of Quebec, together with the Maritime Provinces, form the north-eastern extension of the Appalachian Mountain system. This Appalachian region is characterized by rock formations, ranging from pre-Cambrian to Carboniferous and in Canada is found to possess many of the minerals which have placed some of the eastern states in the foremost rank of mineral and industrial districts of the world.

Important deposits of coal, iron, gold and gypsum are mined, or quarried in Nova Scotia. There is also a considerable production of clay products, limestone for furnace flux, sandstone for building purposes and for grindstones, granite and manganese, antimony, tripolite, and barite are also mined while some attention has been paid to copper and lead ores. The most important mining development in this province is in coal and upon this is based the large iron and steel industries of Sydney and New Glasgow. The iron ores used are brought from the Wabana Mines in Newfoundland. The close association here of one of the largest iron ore deposits in the world with enormous coal resources and necessary fluxes, all conveniently situated on the Atlantic seaboard may well in the not distant future become a controlling factor in a large portion of the world's iron and steel trade.

Mineral development in New Brunswick is less prominent. This is partly due no doubt to the covering of soil, and the forested areas which make prospecting and discoveries difficult. The principal products at present are iron, gypsum, natural gas, lime, coal, building material, grindstones, clays and mineral water. Antimony, manganese and albertite have been important.

Mineral Resources and Mining

Copper, lead, silver, nickel, gold and other minerals have been found. Shales rich in oils and ammonium salts occur in large quantity.

The iron ores at Bathurst are quite large in extent though comparatively low in grade. They should contribute to the future development of the iron and steel industry of the Maritime Provinces. The present world's shortage of petroleum seems likely to give rise to an important industry in the recovery of oil from these oil shales.

ONTARIO AND QUEBEC

The south-eastern portion of Quebec—belonging to this area—is also an important producer of economic minerals. The main asbestos mines of the world are found here, and important industries are carried on in chrome iron ore, copper, pyrites and the quarrying of granite. Iron ores and gold also occur.

The southern portion of Ontario and the valley of the St. Lawrence designated as the St. Lawrence Lowlands, are covered mainly by flat-lying Palaeozoic rocks; and the mineral products include: clay, cement, slate, lime, limestone and sandstone, petroleum, natural gas, salt, gypsum and other non-metallic products.

The country extending from Labrador on the east, enclosing the Hudson Bay basin and referred to as the Laurentian Plateau Region, consists of a huge U-shaped area of pre-Cambrian rocks estimated to cover 2,000,000 square miles, or over one half of Canada. This region occupies nearly all but the most southern portions of the Provinces of Quebec, Ontario and Manitoba. The rocks of the pre-Cambrian are remarkable for the variety of useful and valuable minerals they contain. Iron, copper, nickel, cobalt, silver, gold, platinum and palladium, molybdenum, lead, zinc, arsenic, pyrite, mica, apatite, graphite, feldspar, fluorspar, quartz, corundum, talc, actinolite, the rare earths, ornamental stones and gems, building materials, etc., are all found, and are, or have been, profitably mined. Most of the other materials, both common and rare, that are used in the arts, have been found. The most recently reported discoveries are of chromic iron ore containing minute diamonds.

Along the southern edge of this region in Canada, there are what are known as the gold ranges of the Lake of the Woods; the silver of Thunder Bay; a succession of iron ranges extending from Minnesota for hundreds of miles to Quebec; copper rocks of Michipicoten and Bruce Mines; the Sudbury copper-nickel deposits; the Montreal river and Cobalt silver areas; the Porcu-

Mineral Resources and Mining

pine, Larder Lake and Kirkland Lakes gold fields; the corundum deposits of eastern Ontario; the magnetites of eastern Ontario and Quebec, and their large apatite-mica deposits, etc.

The asbestos deposits of Black Lake, Thetford and adjacent areas appear to be of enormous extent. Production has been of steady growth and has risen to an annual value of over \$10,000,000. The close of the war appears to have brought no cessation in demand for this product such as it did for certain metals.

The nickel industry is carried on by three large corporations, one of which is sponsored by the British Government and is just getting into active operation. All these companies have large blast furnace smelting and converter plants near the mines producing a Bessemer matte carrying about 80 per cent. of the metals nickel and copper with important values in gold, silver and metals of the platinum group. A refinery at Port Colborne, Ontario, which has been in operation since July 1st, 1919, produces refined nickel and blister copper. One of the companies referred to ships its matte to Swansea for refining, while another is just about to place in operation at Deschenes, Quebec, a refinery for the production of refined nickel, copper, gold, silver and metals of the platinum group.

Canada now contributes about 80 per cent. of the world's nickel requirements, the output having risen to a maximum of 46,253 tons in 1918. Canadian consumption is negligible so that the production is practically all exported. Ore reserves in the Sudbury District have already been developed sufficiently to ensure an established industry for the next half century.

The discovery of the silver-cobalt-nickel ores in what has been known as the "Cobalt District" in 1903, and their subsequent development placed Canada third amongst the world's silver producing countries, and in first place as a producer of the metal cobalt. Incidentally these ores have produced large supplies of arsenic and compared with sources other than Sudbury important quantities of nickel. Although the annual production has fallen considerably since 1911 when over 31,000,000 ounces of silver were obtained, there are still large quantities of low-grade ore that may be profitably treated with a high price for silver, while occasional discoveries of high-grade silver veins indicate the opportunities for continued prospecting.

Ontario has become the principal producer of gold amongst the Canadian provinces, and the mines of Porcupine and Kirkland Lake and other promising districts have within a few years reached an annual output of \$10,000,000. The large ore reserves developed on the Hollinger, the Dome and the McIntyre already

Mineral Resources and Mining

assure many years of operation, and the widespread occurrence of the metal not only in this portion of Northern Ontario, but extending over into Quebec, gives most encouraging hopes for future prospecting.

The western end of the pre-Cambrian region extends across the northern portion of Manitoba and Saskatchewan. Prospecting in these provinces has already been rewarded by a number of important discoveries. Large numbers of claims have been staked for gold and several mines are under development, but the most important discoveries have been the copper-zinc sulphide deposits at Flin-Flon Lake and Schist Lake, north of The Pas. Mandy Mine at Schist Lake has already shipped a considerable tonnage of high-grade copper ore. The Flin-Flon property has been extensively drilled proving an ore body of about 16,000,000 tons. A smelter will probably be built in the district in the near future. With transportation and smelting facilities provided, a large mineral area may be actively developed.

As an evidence of the unprospected nature of the country it may be pointed out that three of the most important mining regions in Canada, the asbestos deposits of Quebec, the nickel deposits of Sudbury, each of these being the largest and most important deposits of their kind known in the world, and the silver deposits of Cobalt, counted amongst the richest silver deposits ever discovered, were all found as a direct result of railway construction. It is a safe assumption that this great northern area, almost entirely unexplored and but slightly prospected, contains vast stores of mineral wealth which will become available as the country is opened up.

THE INTERIOR CONTINENTAL PLAIN

The interior continental plain, including the greater portion of Manitoba and Saskatchewan, which lie outside of the pre-Cambrian, and the Province of Alberta, is pre-eminently agricultural, but in addition to furnishing an important market for the product of the mines, it will have a large output of non-metallic minerals. This area is underlain for the most part by sedimentary rocks, chiefly of Cretaceous age, and containing coal, building stones, clays, and cement materials. Natural gas over wide areas and under great pressure has been tapped, and there appears to be every indication of the existence of oil fields for which most intensive prospecting is now being carried on by large Canadian and British Corporations.

Enormous deposits of tar sands have been found in the northern portion of Alberta. The lignite of the eastern plains, useful for

Mineral Resources and Mining

local purposes, becomes more highly bituminous as the mountains are approached. Gold is found in a number of the rivers coming from the mountains. Clay iron-stone occurs in many parts of the north-west and may in time be utilized. Salt and gypsum are also found.

Coal has been the principal product in Alberta and Saskatchewan, the output reaching over 6,000,000 tons in 1918.

The known coal reserves in Alberta are greater than in any other province, being estimated at 1,072,627 million metric tons, or over 100 times the estimated coal resources of Nova Scotia. Natural gas has been found in many wells over wide spread areas. It has been used for many years at Medicine Hat and has been piped 160 miles from the Bow Island field to Calgary supplying all the important towns sufficiently near the main pipe line.

BRITISH COLUMBIA AND THE YUKON

The Cordilleran belt, in South America, in Mexico, and in the Western States, is recognized as one of the greatest mining regions of the world; noted principally for its wealth in gold, silver, copper and lead.

In Canada this belt has a length of 1,300 miles and a width of 400 miles and its rocks range from the oldest formations to the youngest. It is not only rich in gold, silver, copper, lead, and zinc, but has enormous resources of coal of excellent quality, varying from lignites to anthracite, which is conveniently distributed. Though mostly unprospected, it has already been proved to possess the greatest coal fields; several of the greatest copper and silver-lead mines; and two of the greatest placer camps in western America—a region noted for its extraordinary mineral wealth.

The coal fields of the Crows Nest Pass District, and the coking ovens at Fernie and Michel, have supplied fuel for the smelting industries not only of southern British Columbia, but also those of the adjacent States to the south. The Vancouver Island coal mines have supplied metallurgical fuel and domestic and steam coal both for home consumption and for export.

The metalliferous ores of British Columbia are highly complex. Hitherto the production of silver-lead-zinc ores has predominated in the Kootenay districts; gold-copper ores at Rossland; low-grade copper ores at Phoenix and Greenwood in the "Boundary District," and copper ores on the Coast. In the Sullivan Mine at Kimberley it is claimed that upwards of 6,000,000 tons of lead and zinc ore have been developed and that a large tonnage is being annually shipped. A company operates at Trail a series of smelting and

Mineral Resources and Mining

refining plants that have grown to large proportions and is now producing refined gold and silver, electrolytic lead and copper, and refined zinc. The Rossland camp has had a varied history. Its ores are primarily gold supplemented with a small copper content. Recent improvements in ore concentration methods and extensive ore development seem to have ensured many years of further successful operation. In the Boundary District at Phoenix and Greenwood operations have recently been completely closed down and plants are being dismantled after the successful smelting of over 20,000,000 tons of low-grade copper ores. The activities of one company have been transferred to the Copper Mountain properties near Princeton, where a large mill has been erected. The concentrates will be sent to Trail for smelting. On the Coast enormous bodies of copper ores have been developed at Britannia and Anyox. At the latter point a large smelting plant has been in operation since 1914 and is now producing upwards of 20,000,000 lbs. of copper per annum. A complete by-product coking plant has recently been erected and placed in operation, the company having acquired and opened up its own coal areas on Vancouver Island.

The Yukon District has held attention in the past chiefly because of its rich gold placers. Copper, silver and lead ores have been mined, however, and many other metals have been found. Both this District and the great Northwest Territories may be expected to possess great latent mineral resources such as native copper of the Copper Mine River country and the iron ores of Belcher Island.

The future development of the mineral industry will undoubtedly go hand in hand with the growth of population, the opening up of new districts for settlement, and the building of railways, or the provision of means of transportation.

A record of the mineral production in Canada in 1919 is given in Appendix XIX.



Power Resources

POWER—whether it be steam or hydro-electric—is to-day a prime dominating factor in world industry and commerce.

A decade ago, referring to the power resources of the United States, the late Theodore Roosevelt stated: "A single generation will see the exhaustion of our natural resources of oil and gas, and such a rise in the price of coal as will make the price of electrically transmitted water-power a controlling factor in transportation, in manufacturing, and in household lighting and heating." This prophecy is rapidly being fulfilled.

Canada possesses an unusually rich heritage in the water-powers of her inland waters—including her share in international boundary waters. It should, however, be recognized that the basic heritage is really the *water*, and that water-power development is only one of the important uses to which inland waters may be applied. If water is viewed broadly as a natural resource, then the claims of such interests as domestic and municipal supply, agriculture and irrigation, navigation, fisheries, lumbering, and riparian rights, will be duly considered and safe-guarded and there will not be assigned to water-power, *per se*—as has too frequently been the case—a weight to which in many instances it is not entitled. It is practicable to protect each interest inter-related with water, without in any way discouraging or curtailing such legitimate development of water-power as would be in the best interest of a community as a whole.

These comments are of importance because the figures for the water-power possibilities of Canada presented in this brief statement have been compiled with these factors in mind, and hence the estimates are much more conservative than estimates published for certain other countries. Again, the estimates for Canada are based chiefly upon a summation of the power available at actual known power sites and not, as is the case for some other countries, upon the total theoretical potentialities of power streams—counting, for example, the total descent of a stream as its developable head—regardless of whether all such potential factors could eventually be utilized.

The following brief survey outlines the general water-power possibilities of the various provinces of Canada, commencing at the Atlantic sea-board:

Prince Edward Island:—On account of its small size and general topography, the Province of Prince Edward Island possesses comparatively little water-power. Its inland waters, however, are ample for domestic, municipal and agricultural purposes and will yield about 3,000 h.p.

Nova Scotia:—The Province of Nova Scotia has an ample and well-distributed precipitation, and on many of its streams



BIRD'S-EYE VIEW OF NIAGARA

Canada's share of the estimated available power, 2,765,000 h.p., is 1,382,500 h.p.

Power Resources

exceptional facilities for storage. This province is well endowed with water-power. While all of the streams have not yet been investigated, the power possibilities may, meantime, be totalled at 150,000 horse-power, of which 30,000 horse-power has been developed.

New Brunswick:—In the Province of New Brunswick there are along the coast several water-powers of economic importance. A large power known as the "Grand Falls" on the St. John River has a potentiality of upwards of 100,000 h.p., and is the largest water-power in the maritime provinces. The total estimated water-power of New Brunswick is 300,000 h.p., with developments already made totalling some 17,000 h.p.

Quebec:—The Province of Quebec possesses wonderful water-power. The provincial authorities are alive to the benefits derivable from active encouragement of water-power development. Such a policy has resulted in remarkable growth of manufacturing centres like Chicoutimi, Drummondville, Grand Mére, Shawinigan, Sherbrooke, Three Rivers and other places. Practically all important municipalities are supplied with hydro-electric power and light; and power is used extensively in pulp, paper and lumber mills, as well as in mining and electro-metal-lurgical activities. At Shawinigan, on the St. Maurice River, developments aggregate over 200,000 h.p. At Grand Mére, on the St. Maurice, 120,000 h.p., and at the Cedars' Rapids, on the St. Lawrence River, 130,000 h.p. Elsewhere in the province there are four plants of between 20,000 and 30,000 h.p.; seven plants of between 10,000 and 20,000 h.p.; twelve plants between 5,000 and 10,000 h.p.; and about thirty-five plants of between 1,000 and 5,000 h.p. The provincial government has been assisting in the construction of storage works. The storage above La Loutre dam on the St. Maurice River is the second largest artificial reservoir in the world, being surpassed only by the Gatun Lake on the Panama Canal. The water-power possibilities of the province may be placed at 6,000,000 h.p., of which about 900,000 h.p. has been developed.

Ontario:—The Province of Ontario is exceptionally well endowed with water-power, and both the government and the people of Ontario are well alive to the economic value of these powers. Ontario, like her sister province Quebec, has many large plants—similar to those just enumerated for Quebec—developing power for use in pulp and paper, electro-chemical and other manufacturing industries.

A striking example of hydro-electric energy being developed and distributed on a large scale in order to afford a supply of cheap power and light for communities operating under a general scheme of public ownership is found in the operations of the

Power Resources

Hydro-Electric Power Commission of Ontario. This Commission co-operates with over 250 Ontario municipalities to serve upwards of 175,000 customers over more than 3,000 miles of transmission line. The present capital investment, including that for improvements under way, totals upwards of \$100,000,000.

Powers like those on the Ottawa River, on the Nipigon River, and many others which might be specially mentioned, are all within the field of usability and are of great economic importance. Many sites have already been developed.

In Canada, on the Niagara River, developments already made or under construction have a rated capacity of about 750,000 h.p.

On the St. Lawrence River, on a conservative basis, low-water power on the international portion of the river may be estimated at about 800,000 h.p., of which Canada under treaty is entitled to one-half or 400,000 h.p.* The correspondingly estimated low-water power on the portion of the river which lies wholly in Canada is 1,400,000 h.p., thus making an estimated total for Canada of 1,800,000 low-water continuous horse-power. About one-quarter of this is in Ontario.

It is problematical to what extent large water-powers such as those in Ontario and Quebec may be increased by the utilization of storage, but it is certain that under conditions of actual development many water-powers will greatly exceed in magnitude the preliminary estimate. The water-powers of the Province of Ontario may be placed at 6,000,000 h.p., with approximately 1,000,000 h.p. developed.

Manitoba:—The Province of Manitoba, also, has a great water-power heritage. The Winnipeg River has a potentiality of about 265,000 h.p., which by storage may be increased to about 450,000 h.p. Of this, over 80,000 h.p. has been developed. The Winnipeg River powers are within economic electric transmission distance of the City of Winnipeg. The Nelson River, in the more northerly part of the province, has a drainage basin of some 450,000 square miles. By developing the utilizable portion of its fall of over 700 feet between Lake Winnipeg and Hudson Bay it is estimated that this river would yield possibly

*For heads at respective sites and for other qualifying factors applicable to this low-water estimate, consult: *Power Possibilities on the St. Lawrence River*, by Arthur V. White, Commission of Conservation, Ottawa, 1918. Government investigations are in progress contemplating the utilization of all possible head concentrated at a few sites and the utilization also of regulated flow from the storage basin of the Great Lakes. These investigations indicate, for example, that under these conditions there may be obtained in round numbers a maximum continuous power for the international portion of the river of 2,000,000 horse-power. In the lower portion of the river—lying wholly in Canada—a similar utilization of more of the available head and flow would result in correspondingly large increase in power.

Power Resources

2,000,000 h.p. The estimated water-power of Manitoba may be placed at about 3,000,000 h.p., with about 83,000 h.p. developed.

Saskatchewan:—Relatively speaking, the Province of Saskatchewan, being essentially a prairie province, has small water-power possibilities. The Saskatchewan River, in the southerly portion of the province, has a low-water potentiality of about 60,000 h.p., with about three times this amount for the open water season. In the northern portion of the province better facilities exist for storage. The total low-water power for the province may be placed at 250,000 h.p., or three times this quantity during the open season. Practically none of this power has been developed.

Alberta:—Much of the area of the Province of Alberta is prairie country. In the southern portion east of the Rocky Mountains the annual precipitation is small and the use of streams for power would be subservient to their requirement for irrigation which is extensively practised. Power sites in the southern portion aggregate about 40,000 h.p., which amount may be doubled by the utilization of known storage. About half of this power is on the Bow River. To the north, the Athabaska River and tributaries have water-powers estimated at about 100,000 h.p., and at Fort Smith Rapid on the Slave River some 250,000 h.p. is available. These estimates are for low-water flow and in an average winter. During the open water season probably about three times this power is available. The total estimated low-water horse-power for the streams of Alberta is 450,000, corresponding during the open season to something over 1,200,000 h.p. The installed capacity at the developments already made is about 33,000 h.p. Alberta, with its rich coal deposits, is remarkably well circumstanced to develop cheap steam power.

British Columbia:—With its exceptional physical features such as mountains, heavy precipitation, melting glaciers and snowfields, storage possibilities and high heads, the Province of British Columbia possesses many valuable well-distributed water-powers. This province has jealously preserved its water rights and has demanded that these, when transferred to others, be *beneficially* used. The British Columbia Electric Railway Co., at its Coquitlam-Buntzen development, has an installed capacity of about 85,000 h.p.; the Western Canada Power Co., on Stave Lake, of about 40,000 h.p.; and the West Kootenay Power & Light Co., on the Kootenay River, about 40,000 h.p. The Britannia Mining & Smelting Co., on Howe Sound, develops under a head of 1,950 feet. Within a 50-mile radius of the City of Nelson there are power sites, chiefly on the Kootenay and Pend-



AN EXTENSIVE WATER-POWER DEVELOPMENT IN QUEBEC

Capacity 200,000 h.p. Power is used for the production of aluminium, pulp and paper and for electrical transmission to Montreal and Quebec as well as to surrounding municipalities.

Power Resources

d'Oreille Rivers, having an aggregate potentiality of 400,000 h.p. Again, within 50 miles of the City of Vancouver there are water-powers aggregating some 300,000 h.p. Along the coastal region there is estimated to be available over 1,000,000 h.p. The total for the province may be placed at 3,000,000 h.p., of which about 300,000 h.p. has already been developed.

Yukon and North-West Territories:—The extensive areas lying to the west of Hudson Bay and extending north of the westerly provinces to the Arctic Ocean, have not as yet been specially examined for water-power possibilities.

We thus see that Canada possesses a conservatively estimated potentiality of water-power of about 20,000,000 h.p., of which over 2,300,000 h.p. has been developed. Grand totals purporting to represent horse-power possibilities for large sections of a country are apt to be misleading. They are especially misleading when used to make comparisons with other totals when, as a matter of fact, no real basis for comparison has been established. It will be interesting, however, to present in round numbers certain totals of water-powers resulting from data available from various sources. Many of the limitations applicable to these data may be well understood by reference to the water-power reports of a compendium character published by the Commission of Conservation of Canada.

WATER-POWERS IN CANADA

(Tentative schedule)

PROVINCE	Estimated total horse-power.*	Developed horse-power.†
Prince Edward Island.....	3,000	1,800
Nova Scotia.....	150,000§	30,000
New Brunswick.....	300,000§	17,000
Quebec.....	6,000,000	900,000
Ontario.....	6,000,000	1,000,000
Manitoba.....	3,000,000	83,000
Saskatchewan.....	250,000†
Alberta.....	450,000	33,000
British Columbia.....	3,000,000	300,000
Yukon.....	100,000**	13,000
North West Territories.....	50,000**	.....
Total for Canada.....	19,303,000	2,377,800

*Minimum 24-hour all-year power, with allowance for regulated flow where investigated. Figures in this column are given with reserve. The estimates for many of the rivers included will vary as information becomes available from more extensive surveys, from flow records and from storage investigations. Doubtless future investigations will increase the estimated total of Canada's water-power.

†This column presents aggregates of installed capacities.

‡Development of 5,000 h.p. contemplated on North Saskatchewan River. There is a 40 h.p. plant at Beauvil Mission, La Plonge River.

§Special investigation now in progress. **Available possibilities not known.

Power Resources

At this time when, as never before, practically all countries are examining and appraising their natural resources with respect to quantity, quality and situation, it would be misleading not to point out that most of the manufacturing in Canada is carried on in the central portion of the Dominion—and for this, one may hold in mind the territory stretching from the City of Quebec to the City of Winnipeg. This territory is without natural coal supplies. It is true Canada possesses over 110,000 square miles of coal lands, estimated to contain about 846,000,000 tons of semi-anthracite, 314,000,000,000 tons of bituminous coal, 950,000,000,000 tons of sub-bituminous coal, and 110,000,000,000 tons of lignite, and ranks second in the coal reserves of the world. But these reserves are situated in the East and in the West, and the central portion of Canada imports its coal chiefly from the United States. Hydro-electric power, therefore, for central Canada has a greatly enhanced value. Canada imports yearly from the States about 5,000,000 tons of anthracite and from 10,000,000 to 14,000,000 tons of bituminous coal. Canada has been exporting annually nearly 200,000 horse-power-years of electricity to the United States. This quantity of electrical power, upon a reasonable basis of comparison, corresponds approximately to the power-producing capabilities of the 5,000,000 tons of anthracite coal imported annually to Canada from the States.* Electricity is exported from the Province of New Brunswick to the State of Maine; from the Province of Quebec to the State of New York; from the Province of Ontario to the States of New York and Minnesota; and from the Province of British Columbia to the State of Washington.

No cities in the world are better supplied with hydro-electric power and light than Montreal, Ottawa, Toronto, Hamilton, Winnipeg, Calgary, Nelson, Vancouver and Victoria. Those interested in water-power development will find both provincial and municipal authorities throughout Canada ready to co-operate in the furnishing of the cheapest possible hydro-electric power to manufacturers requiring same.

As in other spheres of activity in Canada, British capital has played an important part in the development of some of the Canadian water-powers. Capital must exercise increasingly great care to insure that all basic physical and economic factors pertinent to proposed power developments have been correctly evaluated before commencing construction. In the published

*For various aspects of the economic and physical relationships existing between coal and hydro-electric energy, consult publications listed in *Note* on page 149 of *Water-Powers of British Columbia*, Commission of Conservation, Ottawa, 1919.

Power Resources

reports and other data available as a result of activity on the part of Federal and Provincial Government authorities, there is now available much valuable data to safeguard those entering the field of water-power development.*

*A brief bibliography of certain reference works relating to the water-power resources of Canada appears in Appendix XXIV.



PART OF 84,000 H.P. DEVELOPMENT AT NORTH ARM, BURRARD INLET,
VANCOUVER



NEW UNION STATION, TORONTO
Nearing completion.

Railway Development

THE growth of railway mileage has been a conspicuous feature of the development of the material interests of Canada. In the pioneer days construction was limited to the older provinces, chiefly Ontario and Quebec, where the need was most acute. The first railway was built from Laprairie to St. Johns, in the Province of Quebec, in 1835, and had a length of 16 miles. It was not until twelve years later that 38 additional miles were built in the same province. Then came the old Great Western, from Suspension Bridge to London and Windsor, in Ontario, and about the same time the Grand Trunk was begun from Quebec to Sarnia. By 1856 there were 1,414 miles in operation, and ten years later the figures had reached 2,278.

Viewed in retrospect, it is practically impossible to exaggerate the important part played by the Grand Trunk in the years when Canadian commerce was struggling for a firm and permanent foundation. That path-finding road gave an excellent service to the country, all things considered. It not only ran its main line through the heart of Quebec and Ontario, but it constructed branch lines north and south to meet the transportation needs of the best settled sections of those provinces. If, however, the earnest student of Canadian history was looking for the pivotal event in railway building, as well as the pivot on which the modern expansion of the Dominion has turned, he would find it to be the railway building era, 1881-1886. The opening of the prairie provinces marked the commencement of a distinct advance. It had much to do with the birth of a new and aggressive spirit of enterprise on the part of the Canadian people. In a large and real sense it may be said to have given to them a sense of nationhood—with larger purposes and firmer faith in the possibilities of achievement. Back of all daring and accomplishment one must seek for the psychological inspiration, or miss the basic cause.

Following the putting into operation of Canada's first trans-continental railway came a period of planning, and then a sustained period of positive effort. Out of the success of the Canadian Pacific Railway grew the conviction that the country merely needed courage to exploit our vast and rich heritage; and courage, it was reasoned, should find definite expression in multiplied railway mileage. By 1890 there were 13,151 miles of line in operation throughout the Dominion. During the succeeding decade 4,506 miles were added. Between 1900 and 1910 the volume of mileage was increased by a further 7,074 miles; and in the next nine years over 14,000 miles were constructed, bringing the total up to a few miles short of 38,900. The movement had attained such momentum

Railway Development

that as many miles of railway were built in nine years as had been built during the preceding twenty-five. Out of that very rapid expansion grew our railway problem of to-day.

In 1918—since which year there have been but few and unimportant changes—the railway mileage of the Dominion was distributed among the provinces as follows:—

	Miles
Ontario.....	11,057
Saskatchewan.....	6,162
Quebec.....	4,791
Alberta.....	4,273
British Columbia.....	4,247
Manitoba.....	4,168
New Brunswick.....	1,959
Nova Scotia.....	1,428
Prince Edward Island.....	279
Yukon.....	102

To the foregoing must be added 2,078 miles owned by Canadian railways in the United States—making a final aggregate of 40,900 down to the end of 1919. It will be observed that 18,952 miles of line are in the western provinces, in which direction the principal development since 1880 has taken place. Canada now has one mile of railway for every 200 inhabitants, which is the highest ratio in the world. She probably has the lowest when measured by the standard of territory.

The capitalization of the 40,900 miles of Canadian railway exceeds \$2,020,000,000, of which \$1,140,000,000 is represented in bonds. While that total may not reveal the primary cost, it is clear that present value is in excess of \$2,000,000,000. The bonds of Canadian railways are almost wholly held abroad, chiefly in Great Britain. The public aid given to railways by the Dominion, the provinces and municipalities, in the form of cash, totals \$275,000,000. To this must be added guarantees aggregating \$342,317,649 and 44,096,989 acres of land.

The growth of traffic kept pace with mileage. Commencing with 5,190,416 passengers and 5,670,837 tons of freight in 1875, these figures had been raised to 58,371,716 passengers and 116,699,572 tons of freight in 1919. This was the natural outcome of expanding commerce and the rapid development of the country.

For similar reasons the gross earnings of railways increased during the same period from \$19,470,539 to \$382,976,901. While freight traffic grew from 1,180 tons per mile of line to 2,975, gross receipts expanded from \$4,053 per mile to \$9,556. In both cases the effect of swelling mileage is seen. That is to say, the rapid increase of trackage had brought about a natural dilution of the results per mile. It may be said, however, that there was a very

Railway Development

substantial betterment of the number of passengers and tons of freight per train. It will help to an understanding of operating conditions in Canada to point out that the average haul per ton of freight is 250 miles.

Equipment consists of 5,879 locomotives, 217,258 freight cars and 6,512 passenger cars. For the operation of these and for other purposes the railways of Canada had 158,777 employees in 1919, to whom were paid \$208,939,994. This remuneration was equal to 61.1 per cent. of total operation expenses.

Within the past three or four years Canada has nationalized more than fifty per cent. of the total railway mileage of the Dominion. There had been in existence since shortly after Confederation in 1867 the Intercolonial and Prince Edward Island

Passenger Service
Commencing Monday June 15th 1883

From	Le.	Ar.	Time	Le.	Ar.	From	Le.	Ar.	Time	Le.	Ar.
	S.	P.		S.	P.		S.	P.		S.	P.
Toronto	10.30	5.12	Paris Road	11.15	-	Kingston	3.25	3.75	Montreal	3.53	2
Paris Road	10.40	9.37	Shenandoah	11.10	3	Montreal	3.53	3.75	Kingston	4.11	3
Shenandoah	11.10	3.9	Richmond Hill	11.51	3	Richmond Hill	4.10	3.15	Montreal	4.43	15
Richmond Hill	11.50	6.1	King	12.52	2	Montreal	4.57	5.46	King	5.13	1
King	11.50	5.46	Richmond Hill	12.9	2	King	5.10	5.4	Richmond Hill	5.32	3
Richmond Hill	12.11	4.4	Shenandoah	12.30	3	Shenandoah	5.30	5.9	Montreal	5.46	3
Shenandoah	12.20	3.7	Paris Road	12.36	0	Montreal	5.40	5.37	Paris Road	6.0	-
Paris Road	12.50	3.75	Kingston	12.45	-	Paris Road	6.0	5.45	Kingston	6.20	-

FACSIMILE OF THE FIRST TIME TABLE USED IN ONTARIO

FACSIMILE OF THE FIRST TIME TABLE USED IN ONTARIO

Railways, the former having been an integral part of the pact with the Provinces of Nova Scotia and New Brunswick, and in 1904 was begun the construction of the National Transcontinental from Moncton to Winnipeg, as representing the eastern section of the Grand Trunk Pacific. This line was not taken over by the company operating the latter, and it was in 1914 joined to the Intercolonial. The Canadian Northern was formally taken over by the government in 1918. About the same time the Grand Trunk Pacific also passed into its hands. In 1919 steps were taken by the government to acquire the Grand Trunk, and when these have been carried out the Canadian National Railways System will have a total mileage of 22,231, including 425 miles attaching to the uncompleted Hudson Bay Railway. Of this mileage nearly 2,000 miles will be in the United States.

Canada has 1,696 miles of electric tramways, representing a capitalization of \$171,894,556. In 1919 these lines had gross earnings of \$35,696,532, and operating expenses of \$26,839,071. About



A MODERN TRAIN

Used by His Royal Highness The Prince of Wales in his Tour of Canada in 1919.



ENGINE No. 2, "THE TORONTO"

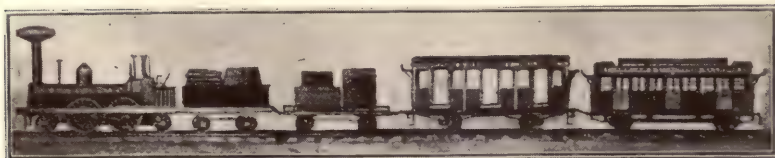
The first engine built in Canada, manufactured by James Good, Toronto, May, 1853.

Railway Development

246 miles of the total mileage is owned and operated by municipalities, separated into ten different units. The number of employees throughout the Dominion is 17,242.

Canada has the largest system of inland waterways in the world. To make these available for transportation over long distances, canals were necessary at certain points. The capital expenditure on this account now stands at \$124,969,110. The deepest lock, 19 feet, is at Sault Ste. Marie; but the new Welland Canal will have a depth of 25 feet in the reaches and 30 feet over the sills. The St. Lawrence River system has a depth of 14 feet. By the aid of these canals a vessel may pass from the head of Lake Superior to Montreal, a distance of 1,214 miles, and continue onward to the Gulf of St. Lawrence and the Atlantic Ocean. As a matter of fact, however, vessels using the canals do not go to sea.

The waterways provided by the Great Lakes, and the system of canals to which allusion has just been made, constitute the chief channel for the movement of wheat from the western provinces to the seaboard. As high as 141,726,899 bushels have been brought down in a single season of navigation. With other traffic the total tonnage has exceeded 50,000,000 tons in a year. The canals are entirely free to vessels of both Canada and the United States.



THE FIRST RAILWAY TRAIN IN CANADA

Which began running between Laprairie and St. John, Quebec, in the summer of 1836.



THE LOCK GATES AT THE SAULT CANAL

Canada's expenditure on development of inland waterways now stands at \$125,000,000.



ENTRANCE TO CANADIAN CANAL AT THE SAULT

The tonnage through which has exceeded 30,000,000 tons in a year.

Water Transportation

CANADA has no more valuable asset than her natural inland highway from the head of Lake Superior to the sea, a distance of approximately 1,216 statute miles (Fort William to Montreal), a system of inland transportation unexampled perhaps in the world. From the day of her settlement, this great artery has been the principal factor in her development, and as the years pass it promises to play an even greater role in this regard. More than \$150,000,000 have been expended in the improvement of this water highway by the Dominion, which is open to the commerce of the world without restriction or toll. By gradually deepening the canals that overcome the obstacles of nature, Canada has provided a safe channel for vessels of 14-foot draft from Lake Superior to Montreal, and with the completion of the Welland Canal, now building, it will be possible for a 650-foot vessel, drawing 25 feet, to travel seaward as far as Prescott (1,097 statute miles, Fort William to Prescott). Whether the St. Lawrence will be deepened to Montreal as is now proposed is a matter for the future to decide.

It requires no large imagination to visualize the part water transportation has played in the upbuilding of Canada. The railroads, which have linked the Atlantic with the Pacific by a bond of steel, have assisted tremendously in settling the widely distributed agricultural regions of the Dominion, but without Canada's water highway to the sea, the railways would have found it physically impossible alone to have carried the burden. For instance, the railroads could not attempt to move the grain crops of the West if it were not for the huge part played in this movement by the Canadian fleet of grain carriers on the Great Lakes and the St. Lawrence, which carry the greater portion of Canada's annual grain crop from the head of the lakes to tidewater, or from the head of the lakes to the various ports of Georgian Bay.

The carriage of coal from the various ports of Lake Erie to both Eastern and Western Canada is rendered economical and expeditious through water transportation, for it is the boats that bring down Canada's grain, that take back the coal which is so essential to the industrial life of the prairie provinces.

The prominent part that Canadian lake operators have played in the development of the country is shown by a review of the growth of the Canadian West, which, only a comparatively few years ago a vast, unsurveyed region of little immediate promise, has been divided into provinces, interlinked by railways, peopled and developed. As late as 1900, even, Alberta and Saskatchewan, then forming a part of the almost unexplored Northwest Territory, produced only 4,000,000 of the 17,000,000 bushels of Canadian wheat garnered west of the Great Lakes, while in 1915 they produced nearly 300,000,000 bushels, a yield over three times as

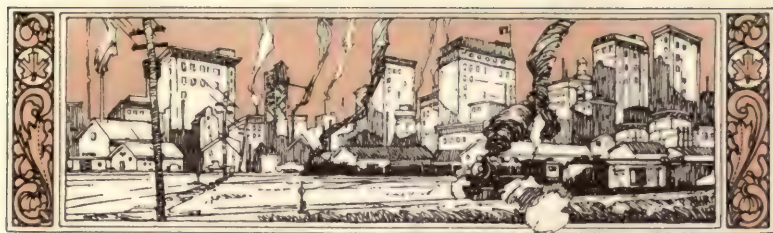
Water Transportation

large as that of Manitoba, until very recent years held to be the extreme western limit of the Canadian wheat belt. Storage elevators with an aggregate capacity of 50,000,000 bushels have been built at Fort William and Port Arthur, and other elevators have been constructed at strategical points at the eastern end of the Great Lakes, which, in conjunction with some 3,000 interior elevators distributed throughout the wheat belt, and the great terminal elevators and warehouses at Montreal, Quebec, St. John, Halifax, and Portland, afford ample facilities for expeditious and economic handling of the crop, as they are extended regularly in conformity with the growth of the industry. Prior to the War, Canada had lent her entire efforts to the development of inland water transportation, relying on the ships of other countries, particularly those of Great Britain, for the ocean carriage of her foreign trade.

Ocean vessels in early days plied between the St. Lawrence ports and Europe, and to-day from these ports there is a service modern in every respect. A fleet, privately-owned, maintains a regular service between Montreal and Quebec (Halifax, N.S., and West St. John, N.B., in winter) and Liverpool, Glasgow, Avonmouth, London, Southampton, Havre and Antwerp. Other services are under consideration and to operate them new vessels are under construction. From Vancouver, regular service is maintained with Oriental and Australasian ports. War, however, awakened Canada to the mistake a country makes in not having its own mercantile marine, and she is now, with the aid of the government, and through private interest, creating the nucleus of a fleet which should render her measurably independent of outsiders.

Since Spring of 1919, the Canadian Government Merchant Marine has established the following services with vessels built by the Canadian Government, viz., Canada and Liverpool; Canada and Glasgow; Canada and London; Canada and Cuba; Canada and Jamaica; Canada and Barbados; Trinidad and Demerara; Canada and Pernambuco, Rio De Janeiro, Santos and Buenos Aires; Canada and Australia and New Zealand, from Pacific Ports; Canada and St. John's, Nfld., and a service will also be inaugurated between Canada, East Indies, Java and Singapore about the end of August, 1920, in addition to which plans are being arranged for an Oriental service from Vancouver with vessels now being built on the British Columbia coast.

It is anticipated that additional services will, in the near future, be arranged to other United Kingdom ports, and it is also proposed to continue the Jamaica service to Venezuela. When sufficient boats are available, it is quite likely a service from Canada to the west coast of South America may be established.



Industrial Development



CANADA'S evolution from an unbroken wilderness into a country producing annually billions of dollars' worth of agricultural, mineral and manufactured products constitutes an interesting story of growth within a comparatively brief period of time. It pictures from the rude but frugal and wholesome beginnings of pioneer days a gradual but certain conquest of the forces of nature until to-day, linked with bands of steel from coast to coast, its waterways made navigable, many of its waterpowers harnessed, and its mineral and forest wealth tapped at numerous points, the country emerges as an industrial force to be reckoned with.

Manufacturing industry followed close on the heels of the early settlers and, as they penetrated ever farther and farther into the interior, little industries were established in their wake wherever convenient waterpowers were available. It was the waterpowers in Canada, as in the motherland, that determined the location of the earliest settlements, and many a thriving town or city of present-day Canada can trace its beginning to the presence in its midst of some once powerful watercourse. The first industries were small and insignificant—tiny grist mills, busy little sawmills, perhaps a small wagon works or a tannery, a carding mill or a foundry—yet some of them had within them the seed of greater things and from puny beginnings have developed into the great industries of to-day.

Various influences have had their effect on the growth of Canadian manufacturing industry since the early days. One of the first and most potent was the development of means of transportation in the first half of the nineteenth century. The building of canals—notably the Rideau, the Welland, and those along the St. Lawrence—and later the construction of railways, made easier the carrying of commodities from place to place. With this development, the day of the purely local industry, to a large

Industrial Development

extent, came to an end. Its product was replaced either by the imported article or by the output of some local factory which had survived the change and enlarged its capacity to meet the altered conditions. By degrees the little pioneer industries were either abandoned or readjusted.

Still it was the case for some years that Canada was a country more noted for its exports of grain, fish, lumber and raw materials than for the extent of its manufactures. Reciprocity with the United States stimulated these exports, while it undoubtedly retarded home industry. Not until 1879 did domestic production of manufactured commodities begin to advance, as indicated by a reference to the census figures of Canadian manufactures for the years 1870, 1880 and 1890.

In 1870, the four provinces comprising the Dominion of Canada at the time—Nova Scotia, New Brunswick, Quebec and Ontario—showed a production valued at \$221,617,773. In 1880, with the addition of the provinces of Prince Edward Island, Manitoba and British Columbia and the North West Territories, production was valued at \$309,731,867, an increase for the decade of 39.7 per cent. By 1890, production had reached \$469,847,886, or an increase of 51.7 per cent. over the 1880 figure. Comparing the two increases and recalling that the territory covered was larger in 1880 and in 1890 than in 1870, it must be obvious that the growth in manufacturing between 1880 and 1890 was on a larger scale than between 1870 and 1880.

A side-light on the situation is also afforded by the statistics of export trade. In 1871, Canadian exports were valued at \$67,483,268; in 1881, at \$97,319,818, but in 1891 at only \$97,470,369. This would seem to indicate that, while the country was steadily expanding its exports during the seventies, these were not appreciably enlarged during the eighties.

EXPANSION OF TRADE

The early nineties witnessed a period of depression which was offset to a certain extent by the prosperity that began to develop with the close of the old and the opening of the new century. Two new forces began to make themselves felt about this time—one the rapid settlement of Western Canada, the other the advent of hydro-electric power. The first created new and expanding markets for the products of eastern manufacturers; the second enabled them to secure large-scale production on a more economical basis. Between 1900 and 1910 there was an immense expansion in industry. The number of manufacturing establishments increased from 14,650 to 19,218. The investment of capital



A CANADIAN AUTOMOBILE PLANT

Industrial Development

swelled from \$446,916,487 to \$1,247,583,609. There was an increase in the number of employees from 339,173 to 515,203. While the value of products jumped from \$481,053,375 to \$1,165,975,639.

As the century advanced, another phenomenon became observable in the field of Canadian industry, and this was the advent of the United States branch plant. The growth of Canada, its immense resources and the favourable position which it might be expected to occupy in relation to the trade of the British Empire, induced American manufacturers to consider the advisability of manufacturing for Canada and the export trade within the Dominion. At first in limited numbers and then in increasing force, these newcomers crossed the border until to-day there are roughly between five and six hundred United States branch plants in Canada. Some of them are of very large proportions, most modern in construction and equipment and operated on a highly efficient basis. In many instances it has been customary to incorporate Canadian companies and to operate the industries as separate entities. Canadian labor is employed as extensively as possible and frequently Canadian capital is invited to participate. As for the lines manufactured, they include a wide variety of products, particularly goods that are extensively advertised in American newspapers and periodicals.

While the great majority of branch plants established in Canada have been of American origin, there has been some activity of a similar nature on the part of British manufacturers. In every case the plans of British companies for Canada have been on a broad and permanent scale and they will undoubtedly add strength to the industrial life of the country.

The coming of all these branch plants, together with the establishment of new industries on the part of Canadians themselves, has contributed to a great increase in the number and productivity of manufacturing establishments in Canada since 1910. As yet it is impossible to show the exact extent of the growth, but up to 1917 the number of plants had increased from 19,218 to 34,392; the number of employees from 515,203 to 692,067; the capital invested from \$1,247,583,609 to \$2,786,649,727 and the production from \$1,165,975,639 to \$3,015,577,940. Later census figures will undoubtedly show a continuance of this growth during the last three years of the decade.

NEW INDUSTRIES

The war's influence on Canadian manufacturing industry has been immense and far-reaching and a new era in production may be said to have commenced with the advent of the war period.

Industrial Development

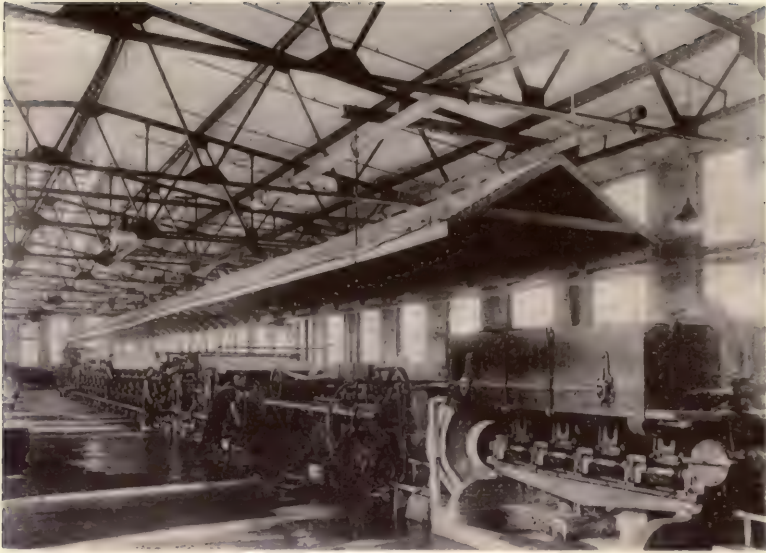
This first made itself felt in the manufacture of munitions, an entirely new undertaking for Canada, and one in which the Dominion attained a high degree of efficiency. There followed, as another war-time activity, the building of ships, an industry which was also most successfully prosecuted. Finally a great stimulus was given to industries that were able to manufacture goods needed in military operations, such as articles of food, clothing and equipment, as elsewhere under the head of Canada and the War, more particularly enumerated.

While Canada's achievements in munition manufacturing were of vital importance and contributed in no small measure to the ultimate success of the Allies, from the industrial standpoint they had their significance in the lessons they taught of self-reliance and enterprise. In a sense Canada found herself industrially. From now on, obstacles to progress, which seemed insurmountable in pre-war days, will lose much of their formidable appearance and the country will enter upon new and larger undertakings with greater confidence. A nation, which could rapidly and successfully improvise immense munitions and shipbuilding projects, will not be easily deterred in the forward march.

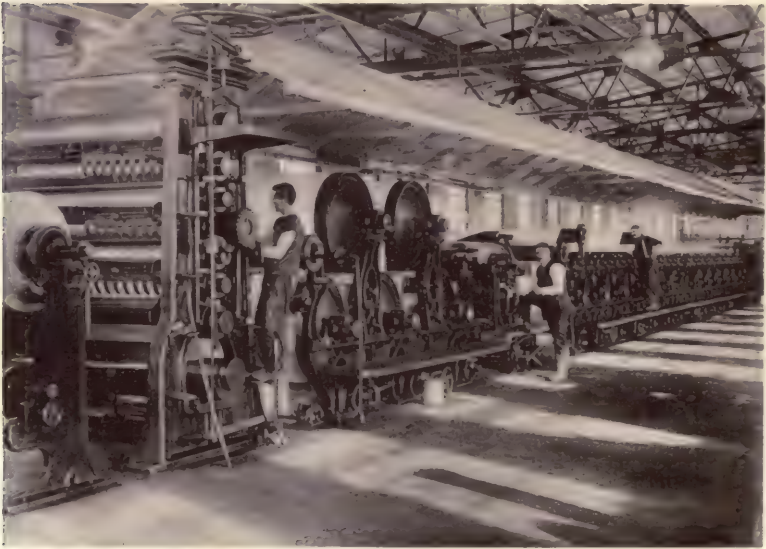
During and since the war, Canada has made substantial progress towards the desirable objective of rendering herself industrially self-contained. Sources of supply of materials that were cut off during the war have been developed at home and, wherever opportunities have opened for introducing the manufacture of new products in Canada, they have been seized upon. This condition may be illustrated by a comparison of the figures contained in the Canadian Trade Indexes* of 1917 and 1920. These volumes contain very complete lists of Canadian manufacturers and the products which they manufacture. In the 1917 Index there were listed approximately 6,500 manufacturers and 6,251 different commodities; in the 1920 Index, there are no fewer than 8,500 manufacturers and 8,445 different commodities. The deduction is plain. In the three-year interval there has been a very considerable increase, both in the number of industries and in the number of different lines of goods that are being manufactured in Canada.

Some very important new industries have been started in Canada within the past year or two, industries which will produce materials and commodities that have hitherto been entirely imported. Take, for example, structural steel. Up to the present time Canada has imported 90 per cent. of her requirements from the United States, only making herself a limited quantity of the smaller-sized shapes. To-day one plant in Ontario is venturing

*Published by the Canadian Manufacturers' Association.



PAPER MACHINE (WET END)
Where the pulp is woven into paper.



PAPER MACHINE (DRY END)

Where the moisture is taken out of the paper before tub sizing.
Capital invested in the paper industry in Canada in 1918—\$242,000,000.

Industrial Development

an investment of from six to seven million dollars in the erection and equipment of a structural steel mill, capable of rolling beams and channels up to 24 inches. This mill will give employment to 600 operators and will be able to supply the greater part of Canada's requirements.

In Nova Scotia a plant is now producing ship plates, an essential material in the shipbuilding industry never before made in Canada. This ship plate mill represents an investment of five million dollars. It is equipped to roll between 3.16 inch to 2 $\frac{1}{4}$ -inch gauges in widths up to 98 inches and lengths up to 80 feet and has a capacity of 500 tons daily.

Tin plate, another essential product not hitherto produced in Canada, and of necessity imported in large quantities by industries using it as raw material, will shortly be manufactured in an immense plant now being rushed to completion in Ontario. This development represents the faith and enterprise of a Welsh firm who see in Canada a field of wonderful possibilities. Canada's tin plate requirements are 200,000 tons per annum and the initial capacity of the plant referred to will be 150,000 tons per annum.

During the war great difficulty was experienced in Canada in securing a supply of soda ash, a chemical product that enters into many industrial processes. It was not made in this country and had to be imported from the United States or Great Britain. This condition brought about the establishment of a large soda ash plant in Ontario, from which Canadian requirements are now effectively supplied. These amount to over 50,000 pounds per annum.

Coincident with the tremendous expansion in the Canadian pulp and paper industry has come a demand for paper mill machinery. Some of the smaller equipment had been made in Canada before, but the big machines have always been imported, representing immense expenditures outside the country. Again Canadian enterprise has come to the fore and one engineering house having cleaned up its war work, is starting to build the huge and complicated mechanisms used in the manufacture of paper.

On all hands there is a steadily increasing production of goods that have up to the present figured as imports. This is particularly true in the automobile and motor truck industries, which are becoming more and more self-contained every year. At first Canadian automobile plants were simply assembling shops, putting together parts imported from the United States. To-day they are still in the main assembling shops, but the parts are coming from Canadian factories, either operated by the automobile



A BRITISH COLUMBIA SHIPBUILDING PLANT



AN ONTARIO STEEL PLANT



Industrial Development

companies themselves or by independent companies. Thus, there are now very few parts of a Canadian automobile that are not made in Canada. The establishment of these auto supply plants has been one of the outstanding features of post-war industrial history, covering a wide field of production.

That Canada now supports a linen industry that carries out all processes from the flax to the finished sheets and towels is an important fact. This interesting industry is located in Ontario, and it is making favorable progress. In the paper industry, which has reached a high state of perfection, new products are still being added, the latest being blotting paper and vegetable parchment paper, both of which have hitherto been imported. Numerous chemical products are being added to the list of Canadian manufactures from time to time, plans now being carried out for operating a huge plant in Ontario, which will produce several lines new to Canada. In a word, the progress being made on every side to develop Canadian sources of supply for all articles for which there is a sufficient home and export demand is exceedingly gratifying.

World shortage of staple lines, coupled with a strong domestic demand, has given Canadian industry in general a powerful incentive in the direction of greater production, and during 1919 and the early part of 1920 there has been a pronounced movement all over Canada towards increased capacity. A considerable number of plants have been enlarged, while in these industries where the shortage has been acute several new enterprises have been launched. This has been most marked in the pulp and paper and automobile industries.

INDUSTRIES ON THE PRAIRIES

Another development that commands attention in these later years is the way in which manufacturing industry is extending over the prairies. Here the growth has been relatively far more rapid than in the east. In the seven years from 1910 to 1917, the number of establishments increased from 902 to 4,082, the number of employees from 27,555 to 42,404 and the value of the products from \$78,794,567 to \$235,132,050. The development has been particularly noticeable in the milling and packing industries, although a number of the larger cities now support many general industries. In the milling industry alone, the mills of Western Canada produced 45,000,000 barrels of flour in 1919. The fact that over one-eighth of the total membership of the Canadian Manufacturers' Association is contained within the three provinces

TYPICAL CANADIAN TEXTILE MILLS



Carpet Factory



Woollen Mill



Spinning Mill

Over \$100,000,000 are invested in the textile industry in Canada

Industrial Development

of Manitoba, Saskatchewan and Alberta, is proof conclusive that the West is by no means given over exclusively to agriculture.

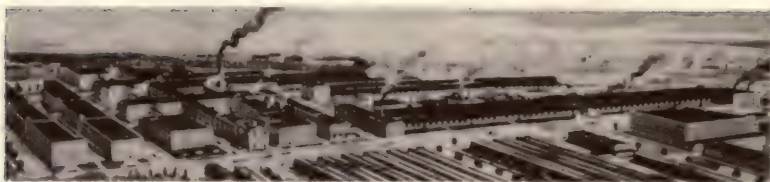
As for British Columbia, the Pacific coast province is fast developing into a great manufacturing district. With its immense resources in forest, mineral and fishery wealth and its splendid water power, it has a wonderful industrial future. Already shipbuilding, lumber, pulp and paper manufacturing and metallurgical production are flourishing and many other industries are springing into existence.



SHIPBUILDING ON THE PACIFIC COAST

Ready for launching

TYPICAL CANADIAN INDUSTRIAL PLANTS



An Agricultural Implement Factory—The selling value of the Canadian product at factory in 1918 was \$34,853,673



An Ontario Motor Car Plant—Cars registered in Canada in 1919, 355,433



A Canadian Packing Plant—In 1919, 277,156,000 pounds of meats were exported

Agricultural Implements

IN a country of tremendous agricultural resources, it might reasonably be expected that the manufacture of agricultural implements would be one of its important industries, particularly when the necessary raw materials are right at hand and skilled mechanics are available in goodly numbers. Indeed, the great agricultural development and industrial activity of recent years have been very closely related, since it is only by the use of the most improved implements that the vast areas of Western Canada have been brought under cultivation.

When the industry was in its infancy, the crude implements then in use were built in little shops scattered here and there, each employing a mere handful of men, and the entire output was easily sold in the immediate neighborhood. As the demand increased, the factories grew in size and began to reach out for trade in other parts of Canada.

Toward the end of the nineteenth century, a few of the more ambitious firms exhibited their implements at some of the World's Fairs in Europe—Antwerp (1885), London (1886) and Paris (1889), with such success that the export trade rapidly developed until now it is one of the leading items in Canada's list of exported articles.

Much of the success of this industry in foreign lands has been due to the efforts put forth by the manufacturers to ascertain the requirements of the various countries by sending their best experts to study the special conditions prevailing in different parts of the world and by bringing recognized authorities to the factories to assist in working out the many problems connected with the designing and manufacturing of implements suited to various requirements. As a result, there is probably not an agricultural country in the world where Canadian implements are not well and favourably known.

The present status of the industry is reflected in the figures recently issued by the Dominion Bureau of Statistics, applying to the year 1918. These taken in conjunction with the figures of 1910, provide some interesting comparisons. It is to be noted that in the eight-year interval, the number of plants has grown from 77 to 84, while the capital investment has grown from \$45,232,098 to \$74,410,603. Of this the investment in land, buildings and plant showed a growth from \$9,621,256 to \$13,528,395.

One of the outstanding firms in the manufacture of farm machinery, the largest in the British Empire, has its head office at Toronto. It has six factories at different points, covering 161 acres and having 83 acres of floor space and giving employ-

Agricultural Implements

ment to many thousands of skilled mechanics. Implements for all purposes from the plowing of the land to grinding the grain are produced in large quantities.

That Canada is well equipped for supplying farm implements is shown by the large and ever-increasing export business built up in the face of the keenest competition from manufacturers in other lands. It may be noted that this trade has won its place in the world's markets on a quality rather than a price basis, which in a measure accounts for its permanent character.

CLASSES OF PRODUCT

The total selling value in 1918 of all products at the point of production was \$34,853,673. The kinds of articles made are so numerous and varied that only the principal ones are specified in the subjoined table:

Articles	Quantity	Selling value at works
Drills, grain.....	31,270	\$3,084,497
Cultivators, wheeled and other.....	35,467	955,607
Harrows, disc, spring and spike tooth.....	117,226	1,959,904
Plows of all kinds.....	70,522	3,073,737
Harvesters, grain.....	30,435	4,412,813
Harvesters and threshers combined.....	1,301	499,069
Hay carriers.....	11,801	431,862
Hay loaders.....	6,702	610,409
Hay rakes, horse.....	24,556	722,066
Mowers.....	37,751	2,073,149
Fanning mills.....	10,025	371,651
Threshers, horse-power.....	1,762	281,155
Threshers, steam-power.....	1,533	572,459
Choppers, pulpers, etc.....	6,939	106,061
Manure spreaders.....	6,082	926,270
Machine and other parts.....	.....	4,966,545
Miscellaneous products*.....	.....	6,849,884
Amount received for repair work.....	.....	2,956,535
Total value.....		\$34,853,673

*Includes windmills and pumps, carriages and wagons, barn and stable equipment, harvesting tools, farm tractors, gas tractors, sleighs, cutter gears and parts, and more than 80 other items.

Automotive Vehicles

THE automotive vehicle is the basis of one of the principal manufacturing industries of Canada, employing capital exceeding \$50,000,000 and approximately 15,000 persons with an annual pay-roll of upwards of \$15,000,000. The annual sales exceed in amount \$100,000,000.

Nine companies are engaged in the production of passenger cars of various models, ranging from the light utility type of car to luxurious closed cars. There are an equal number of motor truck manufacturers. Many companies manufacture tires, parts and accessories for motor vehicles and the number engaged in this class of work is steadily increasing.



ASSEMBLING AUTOMOBILE PARTS

Canadian automotive sales exceed \$100,000,000 annually.

The increase in the automobiles in use reflects the existence of prosperity, and reflects also a tendency to infrugality. When the war broke out the automobiles in use in Canada numbered 67,415, but at the corresponding period in 1918, the number had increased to 267,727 and a year later to 355,433. Canada has one car at present for every 26 persons as compared with one for every 14 persons in the United States. This comparison does not

Automotive Vehicles

necessarily indicate that Canadians are more frugal than citizens of the United States. In Canada most of the cars in use are imported, and the tariff on them is high, consequently their use is more costly than in the United States. These conditions have stimulated industrial efforts to produce "All-Canadian" cars. Of the total cars registered in September 1919, 138,713 are owned by farmers, 84,503 by manufacturers and merchants, and 42,932 by workers in skilled trades. The value of the cars registered on the date mentioned was \$549,316,812. Although the price of cars and of gasoline has materially increased during recent months, the use of the car for pleasure has increased, a fact made clear by the number of registrations.



A PROCESS IN THE MANUFACTURE OF AUTOMOBILES IN A CANADIAN FACTORY
Milling both ends of 18 connecting rods at a time.

The manufacturing of motor-trucks and of tractors is becoming more stabilised. Agriculturists are now more familiar with the principles of combustion engines and therefore place greater reliance on them for power and for haulage purposes. This factor is resulting in the steady extension of their use. Garages are displacing the livery stables all over the Dominion, and no one doubts but that the automobile and tractor are now necessary parts of productive enterprises—whether on the farm or in the city.

Dairying

DAIRYING is one of Canada's oldest and most important industries. To find its beginnings we must go back to the very earliest attempts at colonization. Samuel de Champlain brought cows from Normandy and Britany in 1610, and established a dairy farm at St. Joachim, a few miles below Quebec City, which has been in continuous existence ever since. The pure bred French Canadian cow is descended from this stock and other animals brought over by Colonel de Tracey in 1665. Cows were kept at first only to supply the needs of the owner's family. As the urban centres developed an increasing quantity of milk and its products were required to serve these communities, but it was not until the establishment of the factory system in 1864 that production exceeded the domestic requirements and provided a surplus for export. That surplus has continued to grow ever since and in 1919 the total value of the milk products exported from this country amounted to something like \$60,000,000. The value of products in Canada in 1919 was \$247,531,352, in classes as follows:

	Pounds	Value
Cheese.....	167,107,233	\$45,119,000
Creamery Butter.....	98,903,686	52,500,000
Dairy Butter.....	125,000,000	56,250,000
Condensed Milk.....	110,000,000	20,000,000
Milk Powder.....	5,323,537	1,662,352
Market Milk, Cream and Ice Cream.....	.....	72,000,000

PRODUCTION BY PROVINCES

Cheese factories and creameries are now established in all the provinces of the Dominion, but Ontario and Quebec are as yet the great centres of the dairying industry. The production of creamery butter in 1919 was distributed according to the following table:

Province	Pounds	Percentage
Quebec.....	35,409,837	35.8
Ontario.....	31,900,000	32.3
Alberta.....	10,500,000	10.6
Manitoba.....	8,256,711	8.4
Saskatchewan.....	6,600,000	6.7
British Columbia.....	2,290,000	2.3
Nova Scotia.....	2,093,804	2.1
Prince Edward Island.....	937,518	.9
New Brunswick.....	915,816	.9
	98,903,686	100.0
Eastern Canada.....		72.1
Western Canada.....		27.9



A MANITOBA DAIRY FARM NEAR WINNIPEG
In foreground a champion dairy cow.



SHIPPING DEPARTMENT IN A CANADIAN CITY DAIRY
Production of dairy products in Canada in 1910 was \$247,531,352.

Dairying

Ontario produced 61 per cent. and Quebec 36 per cent. of the cheese in 1919, the remaining 3 per cent. being distributed among the other seven provinces.

The most notable feature of dairy production in Canada during recent years is the large increase in the production of condensed milk, which has grown from about 15,000,000 pounds in 1913 to 110,000,000 pounds in 1919. There has also been a large increase in the production of milk powder during the same period.

The dairying industry is developing steadily in the prairie provinces, especially in the manufacture of creamery butter. In 1910 the total output of creamery butter in Manitoba, Saskatchewan and Alberta was 5,478,304 pounds; in 1915, 12,872,645 pounds, and in 1919 it is estimated at 25,356,711 pounds. There is more butter manufactured to-day in the City of Edmonton, Alberta, than in any other centre in Canada, the total output in 1919 being approximately 7,000,000 pounds in four creameries, one of them being the largest in Canada.

These factories, creameries and other dairy establishments are distributed by provinces as follows:

DAIRY FACTORIES IN CANADA

	Cheese Factories	Creameries	Combined Factories	Condenseries and Milk Powder
Ontario.....	928	172	42	18
Quebec.....	890	559	536	1
Prince Edward Island	15	11	15	1
Nova Scotia.....	3	22	..	1
New Brunswick.....	24	18	1	..
Manitoba.....	26	41	..	1
Saskatchewan.....	..	24	..	..
Alberta.....	7	52	14	..
British Columbia.....	2	25	2	3
	<hr/> 1895	<hr/> 924	<hr/> 610	<hr/> 25

There are also nearly 700 establishments in towns and cities handling market milk and manufacturing ice cream. There is still more butter made on farms than in creameries.

There is practically no cheese made on farms in Canada. The Canadian cheese more nearly resembles English Cheddar than any other variety. Owing to the system of instruction which has prevailed in all the provinces the cheese produced in different sections of the country is of the same character and shows remarkable uniformity in quality. In 1918 when all the cheese was handled through the Dairy Produce Commission and bought

Dairying

according to grade, 88.21 per cent. was first grade. From a large section of Ontario 98.28 per cent. was first grade. There is no other cheesemaking country in the world which can show such a high standard of quality. Canadian cheese ranks first in quality of any imported into the United Kingdom and is there recognized as the standard article.

The efforts to produce uniformity in the character and quality of the creamery butter made in the widely separated dairying districts have also been eminently successful.

While the total dairy production at present is considerable, it is only a fraction of what might be produced. The Canadian dairying industry is likely to grow to much larger proportions. Vigorous efforts are now being put forth to improve the breed of cows so as to secure larger yields of milk. Great progress has already been made along that line. The total number of milch cows in Canada in 1919 is estimated at 3,547,437.



Live Stock and Meat Packing

THE meat packing industry differs essentially from other undertakings in the Dominion and from meat packing in other countries in that its expansion is at present limited by the restricted supplies of meat-producing live stock in Canada. Large quantities of carcasses are regularly imported from the United States to supply the normal output of plant capacity. A summary of packing-trade conditions, particularly with reference to the future, must connote a consideration of the state of our national live stock.

Except during the war years, Canada has not exported beef or mutton to Europe on a large scale in the last decade, but our bacon already has an excellent reputation and a large and growing sale on the British market. Swine of the Yorkshire type yield the much-liked "Wiltshire side." The quality of this bacon is due to careful selection of stock and extensive feeding on dairy produce to a much greater extent than in the coarser bacon of the United States. Supply fluctuates greatly from year to year. The total number of swine reached its high peak of 4,300,000 in 1918 under a national "drive" to supply the food demands of the Allies. Many times the present volume of export trade could be done if farmers were to breed and feed with more regularity. In beef Canada has suffered by Argentine competition, but it is significant that the stock of cattle to-day, compared with population, is exactly in the state it was twelve years ago. In 1908, for every inhabitant there was the equivalent of 1.12 cattle; the same proportion ruled in 1919. The increase only kept pace with the growth of domestic population, allowing no margin for increased export trade. Having regard to possibilities, the number of sheep in the Dominion is notoriously small and the supply of mutton is scarcely more than enough for the domestic demand.

The number of live stock (meat -producing) in Canada compared by typical years and the number slaughtered at inspected establishments is as follows:—

	1909		1914	
	On Farms. Slaughtered.		On Farms. Slaughtered.	
Swine.....	2,912,000	1,532,000	3,434,000	1,799,000
Cattle.....	7,233,000	298,000	6,036,000	532,000
Sheep.....	2,705,000	191,000	2,058,000	499,000
	1917		1919	
	On Farms. Slaughtered.		On Farms. Slaughtered.	
Swine.....	3,619,000	2,245,000	4,040,000	2,333,000
Cattle.....	7,920,000	649,000	10,083,000	888,000
Sheep.....	2,369,000	416,000	3,421,000	398,000



BRANDING SIDES FOR EXPORT



WEIGHING AND PACKING SIDES OF BACON

Out of a total of \$75,000,000 meat exports in 1919, bacon represented \$39,046,000.

Live Stock and Meat Packing

In the fiscal year 1919, the following were the exports of meats from the Dominion:

VOLUME OF MEATS EXPORTED

	Lbs.	Value
Bacon.....	120,622,000	\$39,046,000
Beef.....	128,000,000	26,000,000
Canned meats, etc.....	14,140,000	5,710,000
Hams.....	4,066,000	1,196,000
Mutton and Lamb.....	1,933,000	441,000
Pork.....	2,410,000	592,000
Other Meats.....	5,985,000	588,000
	<hr/> 277,156,000	<hr/> \$73,573,000

It should be stated that the above figures are exceptional, owing to war orders. In addition, over half a million meat animals were in the calendar year exported on the hoof having a total value of \$50,000,000.

The capital invested in the meat packing industry in the last complete returns* is set at \$87,000,000, with a yearly payroll for 12,000 employees of \$12,000,000. Out of the 78 firms in the Dominion, 24 have an annual turnover exceeding \$300,000; the average of the five largest firms exceeds \$20,000,000 each. The order of importance of provinces in the meat packing industry is:—Ontario, 27 establishments; Quebec, 16; Manitoba, 8; Alberta, British Columbia and New Brunswick, 6 each; Prince Edward Island, 5; Saskatchewan, 3 and Nova Scotia, 1. Toronto is the largest meat manufacturing centre, its five largest firms having 6,600 men on the payroll. All plants are subject to Dominion Government inspection.

MARKETING

Live stock is chiefly marketed through six stockyards, *i.e.*, the large scale modernized cattle markets and exchanges at Toronto, Montreal (2), Winnipeg, Calgary and Edmonton. Farmers and drovers sell direct or consign their stock for sale to commission agents on an open market, which is under the direct supervision and control of the Dominion Minister of Agriculture. Besides the representatives of the packing houses, there are also many other buyers who carry on a large trade in fat cattle, hogs and sheep, and especially in the Western centres of lean animals intended for fattening on the (Indian) corn and grass lands of the United States.

*Official Census 1918.



SENIOR SHORTHORN HERD, CANADIAN NATIONAL EXHIBITION
Exhibited by a prairie stock breeder.



A PROFITABLE INDUSTRY

Breeding authorities in Canada, aided by Government Departments, are doing everything to encourage more extensive hog raising in Canada.

Flour Milling

OF the manufacturing industries of Canada, flour milling in many ways stands first and is in closer relationship to the daily life of the Canadian people than any other. The country is justly proud of the reputation its flour has won in every overseas market, while trans-Pacific and trans-Atlantic buyers join in their testimony to its quality and food value.

Milling is the oldest of Canadian industries. Its beginning dates as far back in time as the year 1604, and throughout all the records of the French regime and the first century of British rule there are constant references to flour milling. In the year 1685 there were forty-one mills in the country and in 1724 one hundred and eighteen. By the beginning of the nineteenth century the then settled parts of Canada were dotted with mills all of which carried on a prosperous business with the settlers. Records compiled in 1840 show more mills then in the country than there are to-day. Of course, the grinding capacity was less. One plant alone of those now actively employed can produce more flour in a day than the entire output of the mills of 1840 for a similar period.

Briefly, the present milling capacity comprises 715 plants, having a physical value of approximately \$40,000,000 and showing a daily capacity of 133,520 barrels. The amount of working capital employed would make another \$40,000,000. These mills are widely scattered, every province having a share, though Quebec, Ontario, Manitoba, Saskatchewan and Alberta lead. Here, as in every branch of modern industrial organization, volume of output is replacing the smaller units of other days, as is shown by the fact that eight great corporations now own and operate over sixty per cent. of the total milling capacity of the Dominion. The shares and securities of these are largely owned by the Canadian public and the industry is, therefore, national in the best sense of the term.

In the marketing of its products the milling industry of Canada is truly cosmopolitan. While the British market is the foundation of its exporting trade, every continent and nearly every country of importance in the world contributes a share of the total annual business. The late war interfered with the distribution of Canadian flour in export markets but it also very greatly increased its volume. This is shown by the fact that in 1913 total shipments amounted to 4,666,267 barrels, while in 1918 (the last war year) the total reached 10,826,663 barrels. The turnover is not now as great as in 1918, but this is due to causes arising out of the war and may be considered temporary.

Flour Milling

When the impediments natural to a transitional period like the present have been removed it may be expected that a new increase in exports will be shown.

No one now knows nor can foretell to what extent milling will keep pace with the growth in wheat production in Canada. Circumstances in the world at large suggest that the demand for the high grade wheat which the country produces is bound to be very great, if not unlimited. If such is the case the manufacturing industry should expand in proportion, and it will do so if proper facilities for carrying on export-trade are provided. When cost of production and transportation have been brought to a point where Canadian flour is as cheap or cheaper than the product of the same wheat milled abroad, there will be no question as to the prosperity of the milling industry.

To a very great extent future expansion will be governed by the development of the country's resources in the way of hydro-electric power. Fortunately, Canada is rich in this respect. Unlimited water-power is available and to some extent already harnessed. The operation of flour mills is not a business in which much labor is employed, hence the relatively high wage standard in Canada will not weigh in the competition for export business. Cheap power is of much greater consequence and in this respect the future is full of the brightest promise. In the end it will be found that the superlative quality of the country's wheat combined with natural advantages in the location and operation of mills will supply a basis for an increase in capacity that will place and keep this industry in the very forefront of Canadian industrial activities.



Pulp and Paper

THE manufacture of pulp and paper is one of the striking developments of comparatively recent origin. At present it ranks third among strictly manufacturing industries in the value of its export trade. A little over ten years ago the total capital invested in the industry amounted to but \$50,000,000. The Dominion Bureau of Statistics census for 1918 gives the amount of its capital as \$241,344,704. From April, 1914, to August, 1919, Canadian Pulp and Paper Companies floated a total of \$40,752,876 of various forms of securities, of which, it is estimated, \$20,753,000 was derived from Canada, \$17,800,000 from the United States and \$1,999,876 from the United Kingdom, with the unaccounted for balance divided, probably, between the United States and Canada. The capital is apportioned among the provinces as follows: British Columbia, \$42,705,988; Ontario, \$88,576,807; Quebec, \$101,456,296; New Brunswick, \$7,852,225; Nova Scotia, \$753,388.

There are in all 94 establishments, comprising 37 pulp mills, 31 paper mills, and 26 combined pulp and paper mills. Classified by items, the capital is apportioned as follows: Land, buildings and fixtures, \$118,805,581; machinery and tools, \$60,627,266; materials on hand, stocks in process, etc., \$39,652,078; Cash, trading and operating accounts and bills receivable \$22,259,779.

The industry gives employment to 24,712 male and 1,151 female persons, exclusive of woodsmen, who, at certain seasons of the year, number probably 25,000 additional. In 1918 it paid out in salaries and wages \$26,974,226.

Of pulp, fibres, rags and waste paper there was used in 1918, 1,050,000 tons valued at \$34,125,000 and other materials valued at \$3,423,000. The quantity and value, by species, of wood used in the manufacture of pulp were:

	Cords	Value
Spruce,	1,420,799	\$15,768,579
Balsam Fir	642,530	7,481,806
Hemlock	106,287	1,222,979
Poplar	8,124	82,311
Jack Pine	21,632	217,013
Tamarac	11,347	113,662
All other woods	25	125
	<hr/>	<hr/>
	2,210,744	\$24,886,475
Other materials used .....	.....	4,938,667
	<hr/>	<hr/>
Total cost of wood pulp materials .....	.....	\$29,825,142



A CANADIAN PULP AND PAPER MILL.
Annual Canadian production \$150,000,000. Exports of pulp and paper in 1919 over \$100,000,000.

Pulp and Paper

The total value and volume of production in 1918 amounted to \$119,309,434, distributed as follows:

VALUE AND QUANTITY OF PRODUCTS

Paper	Tons	Value
Newsprint.....	734,783	\$46,230,814
Book and writing papers.....	48,150	10,732,807
Wrapping paper.....	61,100	7,341,012
Boards.....	87,749	5,551,409
Other paper products.....	35,862	3,267,502
Miscellaneous products.....	.....	3,577,369
Total.....	.....	\$76,700,913
Pulp	Tons	Value
Groundwood Pulp.....	273,180	\$ 7,133,711
Sulphite Fibre.....	318,882	22,464,063
Sulphate Fibre.....	144,547	11,705,108
Miscellaneous Products.....	.....	1,305,639
Total.....	.....	\$42,608,521

EXPORT TRADE

More than 90 per cent. of the products of the industry are exported, the principal market being the United States, although the United Kingdom, Australia, Japan and many other countries are importers of Canadian pulp and paper. It is in a study of the growth in the exports of these commodities that the extraordinary development of the industry becomes most apparent. In 1890, Canada's total exports of pulp and paper were valued at \$122. For the fiscal year ended March 31, 1920, they reached a value of \$104,636,901, made up as follows:

Paper and manufactures of.....	\$63,253,419
Woodpulp chemically prepared.....	33,000,063
Woodpulp mechanically ground.....	8,383,419
Total.....	\$104,636,901

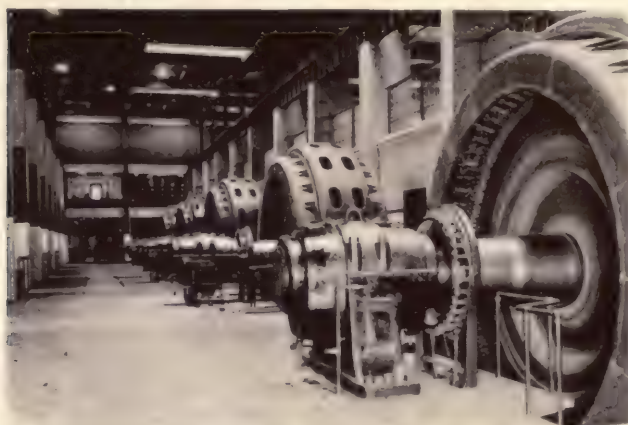
The development of the export trade is traceable to several underlying facts. First, increased paper consumption throughout the world, followed by the gradually diminishing supplies of raw materials, particularly in the United States; the opening of the American market to the free entry of the cheaper grades of printing paper, and legislation by certain Canadian provinces requiring all pulpwood cut on Crown lands to be manufactured within the province. The adoption of the latter policy, particularly by the provinces of Quebec and Ontario, has had a marked and stimulating effect upon the growth of the industry, resulting

Pulp and Paper

in the erection of many new mills and the retention in Canada of much raw material that would otherwise have been exported to be manufactured elsewhere.

Commitments already undertaken promise a considerable expansion in the industry during the next two or three years.

An important development in connection with this expansion of the paper making industry in Canada is that paper-making machines are now being built here for the first time. Heretofore, they have been imported from Great Britain or the United States.



A GENERATING PLANT AT SHAWINIGAN FALLS

The growth in the export trade in pulp and paper for ten years—1911 to 1920—is shown in the following table compiled from government trade returns:

Year	Paper and mfrs. of	Pulp Chemically Prepared	Pulp Mechanically ground	Total
1911.....	\$ 3,924,452	\$ 1,308,101	\$4,407,431	\$ 8,639,984
1912.....	3,885,881	1,587,533	3,506,770	8,960,186
1913.....	6,341,088	2,100,842	3,408,702	11,850,632
1914.....	12,690,549	2,923,083	3,441,741	19,055,373
1915.....	15,500,064	4,806,622	6,801,011	27,107,697
1916.....	20,042,806	4,459,539	3,575,537	28,077,882
1917.....	26,107,824	14,032,920	6,371,133	46,521,877
1918.....	37,865,330	19,133,813	6,487,179	63,506,222
1919.....	49,165,795	30,226,856	4,479,915	83,862,566
1920.....	63,253,419	33,000,063	8,383,419	104,636,901

Textile, Knit Goods and Spinning Industry

THE importance of the Canadian textile, knit goods and spinning industry may be judged by the capital invested at the close of 1918, namely \$107,925,000, and by the fact that normally 37,000 hands are employed.

With the exception of artificial silk and mercerized cotton, Canada can supply practically all of the varieties of yarn the textile and knit goods industry requires.

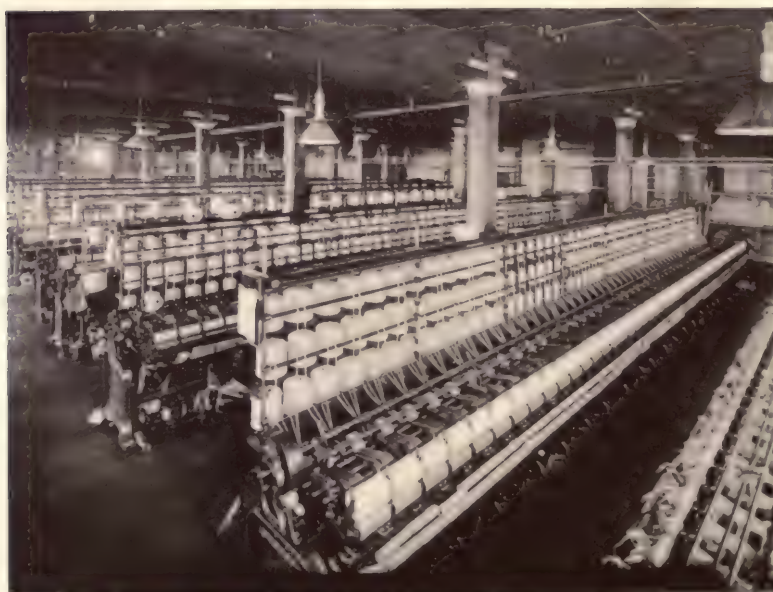
The cotton mills comprise the chief branch of the industry. The first mill to be operated in Canada was one built at St. John, N.B., by Mr. Wm. Parks in 1860, known as "Parks Mill," which formed the nucleus of the present modern plant in operation on the same site. At that time, weaving upon hand looms was a domestic art and the mills were used for the production of warp yarns needed for this home industry. Since that date, and particularly since the outbreak of the Great War, progress has been very marked.

Twenty-five years ago, in 1895, wages paid to workers amounted to \$2,600,000, while to-day the annual wage bill is approximately \$12,300,000. Within this period, \$25,000,000 have been invested in the cotton manufacturing industry to supply ordinary requirements, and many millions more are at the present time being expended to meet the demands for automobile tire fabrics, which is a comparatively new branch of the industry. For this special purpose, three entirely new plants are in course of construction in the Province of Quebec.

The present output in Canada of woven cotton cloth is approximately 300,000,000 yards, representing a value at the mills of over \$65,000,000. In producing this volume, the annual consumption of raw cotton is about 200,000 bales. The capacity of the mills has increased from 535,000 spindles and 11,500 looms in 1895 to 1,100,000 spindles and 24,000 looms in 1920. Not many years ago it was necessary to import a large proportion of the cotton goods used in Canada, but to-day all essential lines are being made here, although for certain special products, for which the demand is relatively small, the market depends upon producers abroad. All grades of grey cotton, including ducks and drills, required for either domestic or manufacturing purposes, are produced, as well as bleached goods such as shirtings, underwear cloths, longcloths, cambrics, nainsooks and fancy cloths, sheets and sheetings, pillow cotton and pillow slips, cotton blankets, quilts, towelling and towels, curtain



MULE SPINNING



DRAWING FRAMES

French Dry Spun System in Canadian Spinning Mill.

Textile, Knit Goods and Spinning Industry

cloths and tapestries, Canton flannels and Saxonies. The woven colored cloths made include such lines as flannelettes and eider-downs, gingham, apron cloths, overall denims and cottonades, awning cloths, mattress tickings, shirtings, etc., while the piece dyed and printed lines cover an enormous range including plain shade dress linings, umbrella cloths, ducks and drills, printed cretonnes and draperies, bed tickings, quiltings, sleeve linings, and an extensive variety of printed calicoes in general.

WOOLLENS AND WORSTEDS

This branch of the textile industry is now firmly established and is producing a class of merchandise of which Canadians are justly proud. The preference once shown for imported as opposed to Canadian woollens has entirely disappeared. The range covered is quite extensive, embracing tweed suitings, homespun, serges, broadcloths, overcoatings, cloakings, etc. Flannels, blankets, blanket cloths and mackinaws are, of course, characteristic Canadian products. Only those in close touch with the woollen industry realize its healthy development and increased strength during the past five years, or the confidence with which those engaged in it look forward to its future. Statistics show that at the end of 1918 some 75 woollen textile mills in operation in Canada, representing an investment of \$20,000,000, gave employment to 6,000 people.

UNDERWEAR AND HOSIERY

There is not a grade of underwear needed for men, women or children that the Canadian mills are not now producing. The prospects for the future are bright. Manufacturers expect to be in a position to take care of all domestic needs, and entertain hopes of exporting some lines on a satisfactory basis.

The number of machines making hosiery in Canada has doubled within the past five years. In silk and artificial silk, cotton, lisle thread, cashmere, both circular and fashioned, everything is made that could be demanded by the highest class of trade, while in the heavier lines, embracing woollen and cotton socks for working men, the Canadian trade has always been supplied by the domestic mills. The knitting industry gives employment to about 15,000 hands and has a capital investment of close to \$35,000,000. The product, which was valued at \$46,000,000 in 1918, has shown wonderful improvement.

FABRIC GLOVES

This industry is a child of the War. In 1914 the first factory was started in Brantford. To-day there are no less than six—

Textile, Knit Goods and Spinning Industry

three silk and three lisle thread—and the gloves produced, particularly of silk, are equal in make and finish to the best that Germany ever produced. There is room for other factories and for the enlargement of those already running if the product is kept up to its present high standard.

CARPETS AND RUGS

This industry has grown rapidly since 1890, when in the whole of Canada there were only about 50 power looms in addition to hand looms. There are now between 350 and 400 power looms, and the Canadian mills, in which about \$3,000,000 have been invested, are up-to-date in every particular.

The lines produced are Brussels, Wilton, Axminster, Tapestry and ingrain carpets of an estimated value of between five and six million dollars. Most of the mills make their own woollen and worsted yarn. Cotton yarns are purchased in Canada, while linen and jute yarns are imported. Each plant has its own staff to create designs and color combinations suitable for the Canadian trade.

The carpets of Canada compare favorably with the best products of Britain and the United States, and can compete successfully in every respect except the cost of labor. There is no reason why, with increased immigration and with the North-West to build up, the carpet output of Canada should not be trebled within the next ten years.



RING FRAME COTTON SPINNING

Tobacco Growing

WHILE tobacco growing in Canada dates back to the early days of its history and was possibly introduced by the Indian tribes then inhabiting the parts of the country known to-day as the provinces of Quebec and Ontario, still it is only in recent years that this industry has been developed on a commercial scale. The protective duty imposed on foreign leaf and the operations of the Tobacco Division of the Dominion Department of Agriculture, have no doubt greatly contributed to the development of the industry to its present stage.

The growing of the White Burley and the Bright Virginia types has been energetically followed up, and the total production of these two varieties of tobacco last year was about 10,000,000 and 1,500,000 pounds respectively. Great interest is now being manifested by the Canadian manufacturers in these classes of home-grown tobaccos and four large manufactories are now established in Canada.

The development of the tobacco growing industry in the Province of Quebec, especially during the past ten years, has created considerable interest. Prior to this date practically all of the tobacco grown in this province found an outlet on the raw leaf market. The introduction of varieties of the cigar type and the fermentation of tobacco have encouraged the manufacturers to use a good proportion of this tobacco as binders, and to some extent fillers, in the manufacture of cigars.

The annual consumption of tobacco in Canada at the present time is approximately 30,000,000 pounds, while the total production in Canada in 1919 was approximately 18,000,000 pounds. This still leaves a fairly good margin for increased production. Nevertheless, there are certain grades in demand by the manufacturers which have not so far been produced in this country. However, the improvement of the quality of the leaf through the proper selection of land, improved methods of culture, handling and grading will no doubt result in a greater proportion of the Canadian grown leaf finding its way into the factories of the country.

The recent preferential duty of 32 cents per pound allowed on colonial tobaccos, should open up an export trade for Canadian leaf to the United Kingdom in the near future. With this established, the production of tobacco in Canada would be given an impetus and an outlet for excess production. It would also help to establish the proper grading of Canadian tobaccos and encourage the loose leaf systems of marketing, especially in the White Burley and flue-cured sections of Canada.



WHEAT ON GOVERNMENT EXPERIMENTAL FARM
ON THE PRAIRIES



TOBACCO PLANT BEDS
Plants ready for transplanting to the field.

Tobacco Growing

The high prices paid for Canadian tobaccos during the past few years have created great interest among the tobacco growers of the country. Unusually high wages of labor have considerably increased the cost of production, but even under these conditions the growers have received very satisfactory returns.

The prospects for the tobacco growing industry of this country are bright, and it should no doubt prove an ever-increasing source of wealth to the country.



TOBACCO ABOUT READY FOR HARVEST

The output of tobacco has been increased from 11,000,000 lbs. in 1914 to 18,000,000 lbs. in 1919.

ESTIMATED AREAS AND YIELDS OF TOBACCO IN CANADA 1916-19

Provinces	1916	1917	1918	1919	1916	1917	1918	1919
	acres	acres	acres	acres	lb.	lb.	lb.	lb.
Quebec . .	2,933	5,000	6,903	22,360	3,000,000	5,000,000	7,732,000	16,770,000
Ontario . .	2,958	2,930	6,500	9,226	2,943,000	3,495,000	6,500,000	10,609,400
Totals . . .	5,891	7,930	13,403	31,586	5,943,000	8,495,000	14,232,000	27,379,400



THE CONNECTING LINK BETWEEN PRINCE EDWARD ISLAND AND THE
MAINLAND



FUR FARMING IN PRINCE EDWARD ISLAND

Is a development of the present decade. As much as \$30,000 has been paid for a pair of Prince Edward Island silver foxes. Pelts and live animals sold realized to the province last year \$1,500,000.



Prince Edward Island



SITUATE in the Gulf of St. Lawrence, and separated from the mainland by Northumberland Strait, lies the smallest of the Canadian provinces, Prince Edward Island. It is nine miles distant at the nearest point from New Brunswick, fifteen from Nova Scotia proper, and thirty from Cape Breton Island.

Its name is derived from Prince Edward, Duke of Kent, Queen Victoria's father, and starting in order from the eastward, its three counties are royally named, Kings, Queens and Prince. On its area of about 2,184 square miles, or 1,398,000 acres, the homes of 93,728 people, mainly of Scotch, English, Irish and French descent, have been made. But a sprinkling of aboriginal inhabitants remain.

The first inhabitants of Prince Edward Island were the Souri-quois Indians, who called the Island, Abegweit, "cradled on the wave." The French called it Isle de St. Jean, St. John's Island, by which it was known till 1799 when it received its present name. In 1663 it was granted to Captain Doublet of the French navy, as a fishing station, but not till 1719 did actual settlement by the French begin. In 1758 it became a British possession, with the fall of Louisburg and this possession was confirmed by the Treaty of Paris in 1763.

In 1767 the Island was divided into lots or townships and allotted by ballot to persons in England who had claims against the British Government on the ground of military or other services. Thus began the proprietary and absentee landlord system, causing much discontent and agitation, until 138 years later, when the question was settled by the passing of the Land Purchase

Prince Edward Island

Act, whereby the landlords were compelled to sell their estates for \$800,000. The Government advanced the money on behalf of the tenants and the latter, on repaying, became absolute owners of their holdings. The Island was annexed to Nova Scotia in 1763, but in 1769 was given a separate government, the first Governor being Walter Patterson, sent out from England. In 1773 the first General Assembly, the oldest in America, met in Charlottetown; in 1851 Responsible Government was granted, and in 1873 the Island became a province of the Dominion of Canada.

The Island, "an emerald crescent set in a silver sea," a land of picturesque and pleasing panoramas, appears to the traveller, sailing towards its shores in the summer time, as

"A low long line of beach with crest of trees,
With openings of rich verdure, emerald hued.—"

The coast lacks the romantic boldness of the north shore of the Gulf and the surface is aptly described as gently undulating. The scenery in its pastoral aspects is suggestive of the older countries. The hedges of England are lacking, but comfortable, well kept homesteads, with grove, orchard, fertile field, and grazing cattle, all indicative of the prevailing agricultural prosperity are to be seen on every hand. The red soil, proclaiming the Island's sandstone formation, forms a strikingly effective contrast to the vivid rich, and varied green of field and woodland, a green which rivals that of the Emerald Isle itself.

Beyond the bulwarks of sand dunes on the north shore, are fifty miles of beaches, affording one of the best surf bathing grounds in the world, whilst on the south, east and west are also superb bathing grounds and fine sailing stretches in land-locked bay or winding river.

The summer climate of Prince Edward Island is ideal. In June and July the country looks its best, being then robed in summer verdure, with the air filled with fragrance of blossoms. The autumn and Indian summer are delightful seasons. The summer heat is always tempered by the waters of the surrounding Gulf and from every direction is borne on the ozone-filled air the life giving breath of the sea. The winters are invigorating without being unusually severe, but the springs, owing to the prevalence of the ice along the shores, are often backward. Of such beauty and brightness is the summer, however, that it amply compensates for the slow coming spring. The cold is neither so cold in winter nor the heat so intense in summer as in the other provinces of the Dominion, barring British Columbia, while the Island, sheltered from the Atlantic by Cape Breton and Newfoundland, is

Prince Edward Island

almost entirely free from fog. The average temperature in summer at Charlottetown is 62.2 degrees and the yearly average 40.7.

MEANS OF COMMUNICATION

The principal means of communication with the mainland for passengers, mails and freight is by the Car Ferry plying across the narrowest part of Northumberland Strait, "where Nature had planned her ferry," between Port Borden (formerly Carleton Point) on the Island and Cape Tormentine in New Brunswick. To establish this service the Federal Government built a new breakwater, pier, dock and terminals at Borden and enlarged the terminal facilities at Tormentine.

There are also services by smaller steamers, operated independently of the Government, between other points on the Island and the mainland. Telegraphic communication is maintained by cables and an extensive telephone system serves the Island internally. A railroad system of 257 miles is also in operation.

THE CAPITAL AND URBAN CENTRES

Charlottetown, the capital city, and seat of the Provincial Government, has a population of about 12,000. It is beautifully situated at the confluence of the East, West and North Rivers, and has a splendid harbour easily accommodating vessels with a draught of 25 feet. Centrally located in the rich agricultural province, it has a big volume of business, and large well appointed stores. It is a well laid out city, with creditable public buildings, attractive residences and wide streets.

The principal educational institutions are the Prince of Wales College, maintained by the Provincial Government, and affording a teaching, training and academy course, and St. Dunstons University (Roman Catholic), affiliated with Laval University, Montreal.

Next to Charlottetown in size and importance is the town of Summerside, in Prince County, with a population of about 3,000. It is progressive and energetic and has an extensive trade with the surrounding country, including one of the best farming sections on the Island. Kensington, nine miles from Summerside, Montague at the head of a river of the same name, and Souris at the extreme east, are thriving business centres. Alberton and Tignish have an extensive export trade in fish. Georgetown has a splendid harbor. The towns have populations between eight hundred and a thousand each. They all have electric lights, and other modern utilities.

Prince Edward Island

Agriculture is the great basic industry of Prince Edward Island, affording directly a livelihood for fully eighty per cent. of the people and indirectly a large percentage of the remainder. Hence the Island is known by various names, such as "the Million Acre Farm" as there is such a large percentage of tillable land, "the Garden of the Gulf" owing to its great fertility, and the "Denmark of Canada," from the prominence given to dairying.

According to the census of 1911, 769,140 acres of land was improved, 433,214 acres unimproved, 307,974 acres woodland, and 4,350 acres in orchards. The average size of a farm is 83.68 acres, and the average value to-day about \$3,000, an increase of nearly 50 per cent. in the past decade. In 1911 the total number of farmers was 14,000 and the total value of farm property \$42,185,912. To-day the estimated value is \$62,000,000.

In 1919 the value of crops of hay and clover, oats, potatoes, turnips and mangels, wheat, mixed grain, barley, buckwheat, peas and corn, was \$22,000,000, an increase of \$5,000,000 over 1918. The estimated value of live stock last year on the Island, including horses, cattle, sheep, lamb, swine, turkeys and hens, was \$12,450,000.

Dairying centres around the cheese and butter factories operate co-operatively. The value of factory-made butter and cheese for 1919 was \$1,069,235, the highest in the history of dairying on the Island, being an increase of \$264,241 over the previous year. The value of home-made butter would be about \$200,000. A rapid development in the poultry industry in recent years was assisted by the Egg and Poultry Co-operative Association. Through that body 892,853 dozens of graded eggs valued at \$410,712 were sold. The total sales on the Island were estimated last year at about 3,250,000 dozens valued at \$1,495,000. It is planned that not only eggs but dairy products, seed grain, potatoes, etc., will be handled co-operatively.

About 120,000 pounds of raw wool, valued at \$72,000, were exported in 1919.

The Island is admirably adapted for fruit-growing, in which there is much room for development, the industry not receiving the attention which its importance demands.

Agricultural leaders are calling upon the farmers to advance along the lines of intensive farming in order to conserve the fertility of the soil, instead of shipping it away in the form of raw products. Special stress is being laid upon dairying, as an essential and profitable line of agriculture, with poultry and hog-raising next in importance. The scarcity of farm labor is being felt here, though probably not to so great an extent as in other provinces.

Prince Edward Island

Exports, principally to the other Maritime Provinces, Newfoundland, the United States and Great Britain, including potatoes, oats, butter, cheese, eggs, live stock, fish of various kinds, and other products of the farm and the sea, were for last year valued at \$12,000,000. Manufactures are few, being mainly those allied to agriculture, including cheese and butter, condensed milk, and potato starch.

	FIELD CROPS				Average
	1919		1918		1915-1919
	Tons	Value	Tons	Value	Tons
Hay & Clover	428,187	\$8,563,756	334,036	\$5,678,612	331,545
	Bus.		Bus.		Bus.
Oats.....	6,038,055	5,132,346	5,839,000	4,535,000	6,147,661
Potatoes....	4,529,250	3,849,861	5,362,310	3,217,386	5,318,812
Turnips and Mangels...	6,395,900	1,638,770	5,008,800	1,023,370	4,624,940
Wheat.....	624,582	1,405,309	606,000	1,344,000	589,066
Mixed Grains	843,362	1,039,397	600,000	623,400	511,064
Barley.....	164,059	229,682	162,000	203,400	126,752
Buckwheat..	87,763	131,644	122,000	175,500	88,023
Peas.....	8,083	26,269	7,300	21,200	3,841
Corn (tons)..	6,264	93,960	5,040	45,360	4,000
		<hr/>		<hr/>	
		\$22,017,034		\$16,867,228	

THE FISHERIES

The Fisheries of Prince Edward Island are extensive and capable of considerable expansion. The fishing grounds encircle the whole Island, the principal centres being at Rustico, Tignish, Alberton, Malpeque, St. Peters, Souris, Georgetown, Murray Harbour, Crapaud and Tryon. Last year's catch was valued at \$1,546,373, an increase of \$335,000 over 1918. Of lobsters 32,360 cases, valued at \$1,081,794 were packed. Next in order came codfish, mackerel, herring, smelts, hake, oysters and clams.

There were engaged last year in the fishing 13 schooners, ranging from 10 to 40 tons, the total crews being 40 men; 1,852 boats with 3,350 men; 189 lobster canneries with 1,200 employees. Equipment consisted of 6,000 gill nets; 1,370 trawls; 1,940 hand lines and 287,501 lobster traps.

This together with piers, wharves, freezers and craft has a value of \$1,110,731.

COMMERCE AND MANUFACTURES

Fame has already been brought to the Island by the success attained in Fur Farming. This Island is pre-eminent as being

Prince Edward Island

the home of the largest number and best individual specimens of ranch-bred silver black foxes. About thirty years ago a few individuals quietly but profitably raised foxes, disposing of the pelts only, but once the sale of breeding stock began in 1910, then a sensational and rapid development took place. It reached its zenith just before the war, when the speculative fever was widespread. As high a price as \$30,000 was paid for a single pair of silver foxes, and large fortunes were made by those who were in on "the ground floor." Prices fell off during the war and brought the business to a pelt basis, which yields good returns. Skins, and the live animals sold for breeding purposes, brought over a million and a half dollars to the province last year, and for 1920 the prospects are still more encouraging.

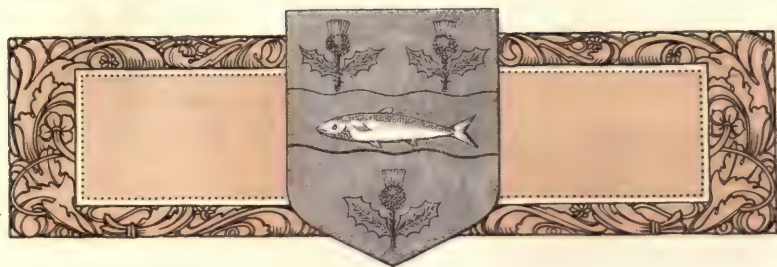
Elsewhere in Canada, in the United States, Norway and Japan, numerous ranches are being established, stocked by Island bred animals. Of the 500 ranches scattered over the Island, the majority are owned by companies. Between 4,000 and 5,000 pairs of foxes, including about 500 pairs of reds and crosses, the balance silver blacks, are being successfully reared in captivity. The reds and crosses are steadily being eliminated, as they cost as much to feed (about \$50 per pair per year) as the far more valuable silver blacks. The average yearly increase is about two pups per pair, but litters of six and in some rare cases, seven have been produced.

There is one large foundry and machine shop in Charlottetown in which gasoline engines used by fishing boats are turned out in large numbers.

Sash and door factories, tobacco factories, a broom factory, chicken canning factories, are among the industries. Reference to the lobster canneries is made under the head of fisheries.

The sum of \$3,158,000 was subscribed to the Victory Loan last year, an increase of \$148,000 over 1919.

This province sent over five thousand of her sons to take part in the great conflict. At the same time she did her best in producing generously from her fertile soil to help feed the armies at the front.



Nova Scotia



THE "New Scotland of America" is composed of the peninsula of Nova Scotia and the Island of Cape Breton. It is situated about half way between the Equator and the North Pole on the north east of the American continent. It is separated from Prince Edward Island by Northumberland Strait and the Bay of Fundy almost severs it from New Brunswick, Nova Scotia being connected with that province by the narrow isthmus of Chignecto, thirteen and a half miles in width. The area of the province is 21,428 square miles, being over thirteen million acres, and slightly more than the area of England, exclusive of Wales. The population numbers approximately 454,000.

Although there are no high mountains the province is intersected by chains of lofty hills, these running in most cases parallel to and near the coast line. The Cobequid Mountains are the most important of these ranges, and are noted for their peculiar colored though superior iron ore. The province has many warm and fertile valleys, the most noted of these being the Annapolis Valley, lying in the shadow of the Cobequid Mountains.

The rivers, owing to the small area of the country, cannot be compared to those of the provinces inland, but they are nevertheless navigable for a distance varying from two to twenty-two miles. The lakes are many and of varied beauty, the largest and perhaps most beautiful in the Peninsula being Grand Lake. But some of the smaller ones are equally fine, abounding in fish and with scenery to satisfy the most exacting of tourists. Many of the lakes inland have the primeval forest growing almost to the water's edge, while the shores of others are guarded by great granite rocks. One of the most interesting lakes in the province is the Bras D'Or Lake, in Cape Breton, which may be described as an imprisoned sea. It is fifty miles long and of great depth.



HOMESTEADS ON THE NOVA SCOTIA COAST

That province's agricultural production in 1918 aggregated \$43,000,000.



A NOVA SCOTIA PORT

Here the rise and fall of the tide is 40 feet.

Nova Scotia

Despite the northern position of Nova Scotia, the climate is temperate, although there are extremes of heat and cold. The cold period usually extends from the end of December to the first of March. The spring is brief, but autumn, the most glorious season of the year, is delightful. The average temperature during the summer is 61 degrees and during the winter 23 degrees.

During the five years preceding the war Nova Scotia had become a great resort for tourists, from the heated and overcrowded cities of the United States, who became fully acquainted with the charm and picturesqueness of the northern scenery. Here they found a new source of strength amid scenes which appeal to the lover of nature, breathing a pure and healthful atmosphere tempered with the ocean breezes. That the climate of Nova Scotia is conducive to health and longevity is attested by the robust vigor of the inhabitants.

The French were the original colonizers of the country now known as Nova Scotia, their first settlement being formed at Annapolis in 1605, then known as Port Royal. These settlers were known as Acadians, for having given the name of Acadia to the land they chose for a home.

The English, however, soon came, following in the wake of Cabot and for over a hundred years Acadia was the scene of strife between the French and the English. It was now held by one and now by the other and the Colonists of each were in turn robbed of their lands and in the process many were slain. This frequent change of ownership and the violent hostility between the two nations was a serious drawback, interfering as it did with settlement and prosperity.

In the year 1710 Port Royal was finally taken from the French and in 1713 the whole of Nova Scotia, with the exception of the Island of Cape Breton, was formally ceded to the English. Grand Pré at the east end of the Annapolis Valley "near the Basin of Minas," is the scene of Longfellow's touching poem "Evangeline." A most historic spot is the Land of Evangeline, and many are the pilgrimages made there, not only by tourists but by Nova Scotians themselves.

In the Seven Years' War Louisburg was captured after a stubborn resistance. One of the most distinguished British officers in that conflict was Wolfe; afterwards the hero of the Plains of Abraham. With the fall of Louisburg the Island of Cape Breton was surrendered, also St. Jean, known to-day as Prince Edward Island. The Treaty of Paris, by which Canada was ceded to Britain, also transferred these Islands to the British Crown.

Nova Scotia in the early days had no House of Assembly. The Governor chose twelve of the leading citizens of Annapolis as a council to act with him in making the laws. The Governor

Nova Scotia

and Council also acted as a Court of Justice to try offenders. Parliamentary Government in Canada was first established in Nova Scotia, its first Assembly meeting at Halifax on October 7th, 1758. It consisted of twenty-two members.

The province received a large number of the United Empire Loyalists from New England at the time of the American Revolution. During these years the immigration to the Maritime Provinces amounted to about thirty thousand. As early as 1773 Scotch immigrants began to arrive and in one year not less than thirteen hundred settled in Pictou County. Between 1791 and 1828 not less than twenty-five thousand Scotch settlers found their way to the beautiful island of Cape Breton.

On July 1st, 1867, the province entered the Canadian Confederation, following which, in 1876 the Intercolonial Railway was opened from Halifax to Point Levis and subsequently extended to Montreal.

The growth of Nova Scotia has been steady and solid and the future promises much. Great mineral wealth makes it not only possible but exceedingly probable that Nova Scotia will become one of the great iron and steel manufacturing centres of the continent. At Sydney and New Glasgow are located large steel plants and since the end of the war, in spite of the industrial unrest common to all parts of the world, very substantial progress has been made by these companies.

AGRICULTURE

Wheat, oats, barley, rye, buckwheat, peas, beans, potatoes, turnips, beets, etc., grow in abundance, while apples, pears, plums, cherries, strawberries, currants, and other fruits ripen to perfection.

The agricultural production during 1918 was valued at \$42,680,314 as compared with \$36,117,203 of the previous year. Probably two-thirds of the increase is due to the inflated value of most products, notably hay, yet the remaining balance is gratifying in view of the many handicaps of a war year as well as a most unusually backward growing season.

The Nova Scotia apple has become a valuable article of commerce. The orchards in Annapolis and Kings Counties extend along the highway for sixty miles. No better apples are grown anywhere than those produced in this sunny land of Evangeline. Large quantities are shipped to Great Britain and the United States. The production during 1919 was over 1,000,000 barrels.

The factory system introduced some years ago has tended towards a very satisfactory development of the dairy interests. Cheese and butter are exported in large quantities to Great Britain.

Nova Scotia

The dikelands around the Bay of Fundy are admirably adapted to the growth of hay, the value of this crop in 1918 being \$19,573-920. The intervalle lands all over the province are rich and productive. The upland is of varying degrees of fertility. The wildwoods, barrens, and pastures are full of strawberries, raspberries, blackberries, blueberries, whortleberries and cranberries. Cranberries are an important article of profitable cultivation, not only for home consumption but for export, in sections of bog land which is valueless for any other purpose. Great attention is given to the cultivation of fruit, the government having established a School of Horticulture at Wolfville.

MINERALS AND MINE PRODUCTS

The value of the coal output during the year 1918 was \$26,250,000, as compared with \$23,600,000 in 1917. It must be understood that while the value in 1918 was considerably higher, the total amount of coal raised was less than that of the preceding year. The actual number of tons raised in 1917 was 5,667,000, while in the following year it dropped to 5,175,000.

Other mineral products of the province for the years 1917-18 were as follows:—

Minerals	1917	1918
Pig Iron.....short ton	437,354	415,808
Steel Ingots....."	515,538	512,377
Limestone....."	411,575	407,048
Crude Marble....."	.....	250
Coke....."	645,327	584,891
Gypsum-crude....."	298,108	56,816
Gypsum-Calcined....."	10,000	5,100
Building stone....."	24,711	6,163
Brick.....number of	13,598,075	13,379,600
Cement Blocks....."	25,000	22,700
Drain pipe and tile.....feet	959,933	1,001,792
Grindstones.....short ton	360	300
Gold-bearing ore....."	5,296	1,630
Gold.....ounces	2,296	1,279
Moulding Sand.....short ton	250	300
Ammonia sulphate.....long ton	5,068	4,788
Toluene.....gallons	.....	705,000
Barytes.....long ton	2,400	1,600
Antimony ore....."	10,660	.....
Scheelite ore....."	501	120
Molybdenite....."	25	.....
Manganese....."	180	.....

Iron-ore imported 699,358 net tons.

Sydney coal fields on the east shore of Cape Breton have an area of over 500 square miles. Seams vary from 3 to 12 feet in thickness, and the coals are highly bituminous, and suitable for coke and gas making. For steam purposes they rank as

Nova Scotia

superior to Newcastle, and nearly equal to the best Welsh steam coal. Some of the beds enjoy a special reputation for domestic purposes. Hitherto the collieries opened in the Sydney district have been sufficient to meet the demands of the trade. Now that the trade of the province is rapidly expanding, the deposits at Loch Lomond, River Inhabitants, Port Hood, Mabou, and Broad Cove, are being given the attention of colliery interests.

The Pictou Coal Fields on the mainland have an area of 35 square miles. This coking coal is used largely by the New Glasgow industries and has a good reputation for steam purposes. The Cumberland Fields have an area of four hundred square miles, the coal from which is extensively used on Canadian railways. At Springhill there are nine seams from three to twelve feet in thickness. Mining is also carried on at Joggins. Deposits have been located in Colchester, Hants and Antigonish Counties. Home consumption is large and will be greatly increased with the further extension of iron and steel works at Sydney and New Glasgow. Large quantities are also sent to the United States.

The mining of gold, although carried on on a comparatively small scale, when pursued methodically is remunerative and capable of extension. The mines are all within easy reach of roads, and of the harbors along the coast.

Manganese, antimony, copper, lead, building stone, etc., are worked to a small extent, and large quantities of gypsum are found near Windsor.

FISHERIES

The fisheries of Nova Scotia are each year becoming more important as producers of wealth. The high prices of fish stuffs obtaining since 1914 have brought greater prosperity to the fisherman and, coupled with the big demand for all fish products, have tended towards an increase in the fishing craft, making possible the installation of auxiliary power. Consequently, the fishermen in all sections of the Atlantic coast to-day have motor engines in their boats.

The importance of the fishing industry to Nova Scotia can be realized after consideration of the fact that nearly twenty-seven thousand men are employed directly in this industry. During the year 1918, 4,814 were employed on vessels, 16,953 on boats and 4,790 were employed in fish canneries. In the same year over 800 vessels, tugs, and carrier smacks were in operation as well as 5,219 gasoline boats and 7,793 large sail and row boats. The total value of traps, nets, hand lines, trawls and so forth, is believed to be \$1,218,000 and that of lobster plants \$1,650,000. The value of fish and fish products for the year 1901 was \$7,989,548, whereas for 1919 the value was \$14,350,000.

Nova Scotia

The land area of Nova Scotia is 20,600 square miles and of this the forests and woodlands cover 6,464 square miles, or about 31 per cent. of the total. Of this forest and woodland area all but seventy-eight square miles are granted land so that the timber lands of Nova Scotia are practically in the hands of private owners.

Extending through the counties along the north coast there is a belt of hardwood—oak, birch, and maple. Spruce and tamarac grow in abundance and there is also a young growth of pine. In the north-east part of the province around the head waters of the rivers flowing into the Atlantic there is an extensive well-wooded region. Forest products for the years 1917, 1918 and 1919 are valued at \$4,500,000, \$5,400,000 and \$16,965,000 respectively.

MANUFACTURES

The manufacturing industries include the refining of sugar and oil, the production of steel and wooden ships, boots and shoes, biscuits, rope and twine, cotton, carriages, woollens, iron and steel, agricultural implements, glass, etc. Of these the production of iron and steel is one of the most important, and has before it a future of great promise. There are deposits of iron ore at several places and, besides, apparently inexhaustible deposits exist on the shores of Newfoundland. From there it is carried by water transportation to the works in Nova Scotia. One of the largest iron and steel plants in Canada is situated at Sydney, on the Island of Cape Breton, where in close proximity to the excellent harbor are extensive coal mines. It is claimed that, in the near future, iron and steel will be produced here at so low a cost per unit of product as to permit these works to compete successfully in the metal markets of the world with both British and American producers. Most of the iron ore used by the company is obtained from the Wabana iron mine on Great Bell Island in Conception Bay, Newfoundland, about thirty-five miles from St. Johns and about four hundred miles from Sydney.

Recently a plate mill has been installed in connection with the Steel Plant, Sydney, capable of producing 50,000 square feet of half inch plate in twenty-five hours, or practically 500 tons daily. This is a portion of a fifteen million dollar development.

Steel shipbuilding is carried on at Halifax and New Glasgow. Large quantities of sugar are refined at the former city. At Amherst, in the eastern part of the province, is a large establishment engaged in the manufacture of steam engines, mill machinery, railway cars and similar goods.

TRANSPORTATION

There are 1,428 miles of railways in operation in the province, the Canadian National being the most important line. Decided

Nova Scotia

improvements are being carried out on other but smaller lines. The Dominion Atlantic, the Land of Evangeline route, has been taken over by the Canadian Pacific Railway and is by them being gradually built up to the standard of their other lines.

Almost an island, Nova Scotia is abundantly supplied with cheap water transportation. The rivers are small and none are to any extent navigable to large vessels, still no part of the province is very far from tidal waters. Between Halifax and Great Britain a steamship service is maintained throughout the year, and also with St. John, N.B., the New England ports, and the West Indian Islands.

THE CAPITAL CITY

Halifax, the capital of Nova Scotia, has a population of approximately 70,000 and is a thriving seaport. The city is situated on a peninsula about five miles long by three miles broad, rising on Citadel Hill to a height of about 250 feet above the sea level. The harbor is land locked, whilst deep water and its natural features make it one of the best and safest in the world. During the war it occupied a position of supreme importance. In addition to being the headquarters of the North Atlantic Squadron, it was the gateway through which many thousands of Canadian and American soldiers passed to the theatre of war. Millions of dollars worth of supplies and munitions were also shipped through this port, to the allied armies.

On the sixth of December, 1917, Halifax was the scene of a most terrible disaster. A munition ship, the *Mont Blanc*, was putting to sea with over 4,000 tons of high explosives when she collided with an incoming freighter, the *Imo*. The explosion which followed caused a loss of life of over 1,400, while the number injured was close to 3,000. Over 6,000 families were rendered homeless. The city has, however, rapidly recovered and the devastated areas are being gradually re-built.

The Hon. Samuel Cunard, of Halifax, was the pioneer of the Atlantic steamship business. He built the steamship *Britannia*, the first of the famous line now bearing the founder's name. The *Britannia* left Liverpool for Halifax and Boston on her first trip on July 4, 1840. One of the best dockyards in North America is located at Halifax in connection with the naval station. New Ocean Terminals are nearing completion upon which nearly twenty million dollars have been expended. In addition to a thriving inter-provincial and coasting trade, Halifax also trades largely with the West Indies.



New Brunswick



NEW BRUNSWICK originally was settled by both French and English and about one-third of its population is still French. Formerly New Brunswick was a part of Nova Scotia, was known as the County of Sunbury, and was represented in the House of Assembly at Halifax. In 1784 the new province was formed with the name of New Brunswick, the first Governor being Thomas Carleton, who took office in that year. The first Government consisted of a council of nine members and the Supreme Court was organized.

The early settlers of New Brunswick made their entry into the country along the rivers, which accounts for the fact that practically all the settlements were located on their banks. As time went on, however, and settlements became more numerous, some kind of communication by land became necessary, facility of communication with their neighbours being regarded as one of the first requisites to comfort and welfare. Their numbers and their means as well as those of the province were so small as to make the prospect of procuring roads one almost impossible of attainment. However, it appears, from papers laid before the Legislature of 1787, commissioners had been appointed to lay out a road between St. John and Sackville, known as the Westmoreland Road, a distance of about 135 miles. A road was also explored from Fredericton along the east side of the Jemseg River and the Washademoak to the Petitcodiac, where it joined the previously mentioned road. Roads were also laid out from Fredericton to St. Andrews, and from the Oromocto River to St. John, on the west side of the river. In most cases the roads were without bridges, so that the rivers had to be crossed by ferries or fords, and the roads themselves were little better than paths through the woods.



EASTERN SIDE OF THE HARBOR OF ST. JOHN, N.B.
The exports from which port in 1919 were valued at \$150,000,000.



A NEW BRUNSWICK RIVER DRIVE
The cut of lumber in this province in 1919 was over 200,000,000 square feet.

New Brunswick

Such was the condition of the province with regard to its internal communication in its early days. At the close of the nineteenth century the people of New Brunswick found themselves possessed of upwards of 15,000 miles of roads, in addition to some 4,000 bridges; and having also the advantage of some 1,500 miles of railway, a mileage which has more than doubled in the last fifteen years. Railway development followed and the province is now well served with modern transportation. At present no province in the Dominion is better supplied with water and railway facilities than is New Brunswick.

There are many progressive cities and towns in the province, among them Fredericton, the capital city and the seat of many provincial institutions; St. John, an important winter and summer ocean port; Moncton, a railway city and important industrial centre; Woodstock, Sackville, St. Stephen, St. Andrews, Bathurst, Newcastle, Chatham, Dalhousie, Campbellton and many other busy and beautiful towns and villages along the northern shore of the province.

AGRICULTURE AND DAIRYING

Large sums are granted each year to aid the farmer by the importation of pure-bred stock, grants to exhibitions and agricultural societies, and the employment of experts to advise in every branch of farming. Realizing the possibilities for the successful raising of sheep in New Brunswick, the Department of Agriculture, through the medium of the Sheep Purchase Credit Scheme, distributed approximately 1,400 sheep during the latter part of the last fiscal year and the early portion of this year. The distribution comprised pure-bred rams, pure-bred ewes, high-grade ewes and ewe lambs. The stock handled was of a high quality. In some cases it was used as the nucleus for improved flocks. Other established flocks were greatly improved by the influx of new blood. Although the number of high-grade sheep, imported and from domestic flocks, distributed was small in comparison to the sheep population of the province, combined with the departmental propaganda given, it had the desired effect of creating more interest in this line of stock-raising which is so well adapted to New Brunswick conditions and to the system of farming carried on over the major portion of the province, namely, mixed farming.

Well-watered pastures and a suitable climate make New Brunswick eminently a dairy country. Marked progress has been made in the quality of the dairy products produced in the province. Two years ago cheese buyers were afraid to touch the output of

New Brunswick

many New Brunswick factories. To-day the relationship between the buyer and seller is very satisfactory. The cheese is graded by department officials and these grades accepted by the trade. This has resulted in a very marked improvement in the general quality of the cheese going on the market. New Brunswick cheese is fast approaching as high a standard as that produced in any other part of Canada. Marketing facilities were greatly improved by the organization of a Cheese Board in the spring of 1919. Every two weeks factory managers boarded their cheese and it was sold by auction. This system of marketing met with marked success, and was found to be more satisfactory to both buyer and seller. The buyers could get their supplies without having to hunt all over the province for them, while higher prices were secured.

Encouraging and assisting the Central Creamery plan has proved to be satisfactory. The experience of one creamery may be instanced, that of Moncton, which began operations in 1918, and will in 1919 pay out nearly four times as much money to patrons as in 1918. The number of patrons has increased from three hundred to over six hundred. The making of ice-cream was commenced during 1919, and this part of the business will be enlarged considerably next year; in fact, operators will find it necessary to enlarge the whole plant, in order to take care of the increased business. The success of central creameries has brought about a development in the dairy herds of the province. More and better cows are being kept as a result of improved market conditions for their products.

The following figures will give some idea of the development of the dairy industry in recent years:—

CHEESE PRODUCTION

Year	Lbs. milk received	Lbs. cheese manufactured	Average price per lb.	Value
1914.....	10,168,839	1,220,026	13.05c.	\$138,714.73
1917.....	11,150,000	1,115,753	21.07	232,527.06
1918.....	12,111,317	1,174,362	22.43	264,304.05
1919.....	12,898,003	1,256,388	27.66	347,772.02

BUTTER PRODUCTION

Year	Lbs. cream received	Lbs. butter made	Price per lb. butter	Value
1915.....	2,792,955	776,416	29.85c.	\$231,837.82
1917.....	719,238	500,050	39.93	199,686.33
1918.....	2,504,912	660,884	45.00	297,397.80
1919.....	3,154,700	915,816	55.09	504,602.22

The number of dairy cows in the province is 153,058.

New Brunswick

Crop and live stock statistics for 1919, as compared with previous years, will give a good general idea of the progress made in New Brunswick's agricultural development; in this connection the following comparisons are interesting:—

LIVESTOCK

	1916	1918	1919	Increase 1919 over 1918	Value of Increase
Horses.....	65,169	66,590	77,828	11,238	\$1,123,800
Milch cows.....	100,221	120,123	153,058	32,935	2,140,775
Other cattle.....	192,444	166,624	211,964	45,340	1,133,500
Sheep.....	105,877	140,015	212,745	72,730	872,760
Swine.....	70,683	79,814	104,939	25,125	251,250
Poultry.....	.....	674,412	796,698	122,286	.....

Value of livestock in 1919, \$27,429,698.

FIELD CROPS

	1916	1918	1919	Increase 1919 over 1918
Spring Wheat..bush.	242,000	940,250	623,000	*317,250
Oats.....bush.	6,039,000	7,051,400	9,852,000	2,209,600
Barley.....bush.	45,000	163,140	285,000	121,860
Buckwheat...bush.	1,206,000	1,499,500	1,871,000	371,500
Mixed Grains..bush.	30,000	139,900	179,000	39,100
Potatoes.....bush.	7,488,000	9,077,600	10,790,200	1,712,600
Turnips.....bush.	3,165,000	6,477,500	8,898,800	2,421,300
Hay & Clover..tons	850,000	1,111,000	1,111,000	same

*Decrease.

Value of field crops in 1919, \$52,688,494.

FRUIT-GROWING

The experience of recent years in this province has demonstrated that commercial production of high quality apples, which are in demand on a variety of markets, is practicable and fraught with no greater dangers than in many other apple sections of the Dominion. The ability of New Brunswick growers to realize top prices for their apples on the largest competitive market in Canada (Montreal), and to do that practically at the first attempt, has added greatly to their confidence in their own province and its climate as being adaptable for apple production on a commercial basis. Thus the growers have added confidence in their ability to grow good apples and market them successfully in open competition with the apples from long established fruit growing sections, hitherto considered as more favourably adapted.

The New Brunswick Fruit Growers' Association, acting with the assistance of the Horticultural Division of the Government, commenced co-operative shipments of apples in 1917. This work

New Brunswick

has increased rapidly and has become popular with the growers. The high standard of grade and pack has been maintained and even improved from year to year, and the prices realized have been as high, and in some cases higher, than those paid for apples from other provinces.

The growing of small fruits is profitable in the province and climatic conditions are very favourable. Small fruits received at St. John, N.B., in the season of 1919, included 200,000 boxes of strawberries, 50,000 of raspberries, 50,000 of blueberries, 1,500 of gooseberries. In addition to the foregoing, 100,000 boxes were shipped from Kings County to Montreal and the same quantity from Westmoreland County went to Quebec and Montreal markets.

APICULTURE

Figures obtained by the Bee Division through the census taken, with the co-operation of the beekeepers, indicate that there was a good honey crop in 1919. These figures also indicate a steady development of this industry in the province. A large amount of work has been done among the beekeepers, in the way of practical demonstrations in up-to-date methods of handling bees. Through personal visits to the apiaries any small outbreaks of disease have been detected in time and control measures adopted at once. The province is very free of disease, there being no European foul brood and very little of the American foul brood.

The marketing of the crop has been given some attention, beekeepers in outlying districts having in the past had to sell in a limited local market, at very unsatisfactory prices. The Beekeepers' Association has brought them in touch with the best markets and made it possible for them to dispose of their crop to advantage. The value of the honey crop in New Brunswick in 1919 was over \$75,000.

NATURAL RESOURCES

The Province of New Brunswick has a wealth of natural resources, other than agricultural areas, including timber and pulp lands, fish, lime, bituminous coal, gypsum, building and monumental stone, crude oil, natural gas, all of which are being manufactured or under development. In addition, there has been partial development of deposits of clay, antimony, manganese, tungsten, copper and iron. The province has about 300,000 horse power available in water powers, of which less than 14,000 h.p. is developed. The provincial government is introducing legislation designed to assist in the development and utilization of a number of these idle water powers.

New Brunswick

A very important item in the natural resources of the province is its big game, which includes moose, deer, bears, foxes, beavers and many smaller fur-bearing animals, besides trout, salmon and bass, and such feathered game as wild geese, duck, partridge, woodcock, snipe, plover, etc.

The sea fisheries of New Brunswick amounted in value in 1918 to \$3,767,479. The species of fish represented in these figures are herring, sardine (immature herring), cod, haddock, hake, pollock, mackerel, gasperaux (or alewives), smelt, shad, lobster, oyster, clam. The inland fisheries embrace such varieties as trout, land-locked salmon, bass and pickerel.

The following table is of interest as showing the lumber cut for a period of years:—

LUMBER CUT

Years.	Spruce and Pine. Sq. feet.	*Other Lumber. Sq. ft.	Pulp- Wood. Cords.	Sleepers. Pcs.	Poles. Pcs.
1910.....	200,599,402	81,117,000	3,591	227,763	443
1914.....	170,847,404	99,387,369	622	199,938	5,300
1915.....	183,790,316	106,330,507	215	57,364	1,830
1916.....	162,132,621	79,078,063	308	54,086	2,320
1917.....	150,253,667	84,943,907	1,196	28,429	1,266
1918.....	98,495,605	75,149,272	8,354	460,134	2,959
1919.....	123,911,180	77,066,537	2,810	635,016	3,707

*Includes Fir, Cedar, Hardwood, Hemlock and Poplar.

In coal, it is estimated that there is a total of 151,000,000 metric tons in the province, of which 138,000,000 are in the Grand Lake area adjacent to the St. John River, and about midway between St. John and Fredericton. This latter area has been in active operation for a number of years, the production in 1918 being 230,117 tons. In the same year gypsum production amounted to 25,825 tons. In addition to the above resources there are large peat areas in the south-western and north-eastern parts of the province.



A QUEBEC ROAD

Part of the system upon which the Government has expended \$23,000,000 in an extensive programme of first-class highways.



APICULTURE IN QUEBEC

As in other provinces, is extending appreciably.



Quebec



THE Province of Quebec is, through her ports and her great river, the eastern gateway of Canada. Her soil for the most part is exceedingly fertile and well adapted to the most profitable kinds of farming; her forests are comparatively boundless in extent, and contain the most valuable varieties of timber; her mineral wealth is still largely undeveloped, but already exceedingly valuable deposits of iron are being worked, and many others are known to exist. Useful structural material abounds in almost every district—limestone, marble, granite and sandstone; gold has been found in paying quantities in several localities, and copper is being mined. Her fisheries are extensive and give employment to a large number of people living in the eastern part of the province. The inland waters, too, are well stocked and thousands of sportsmen seek them each season. One of the oldest of all crafts, that of the trapper, has still a wide field for its exercise in those vast tracts which lie to the north and west, and still await the axe of the pioneer.

Quebec's position in the Canadian Confederation and in fact her position on this continent, is unique. Her laws, her language, her traditions, are not those of the other provinces with which she is linked in national life. Quebec is the New France that Champlain founded, that Frontenac defended, that Vaudreuil surrendered. One hundred and sixty years have passed since the flag of France ceased to wave over the valley of the St. Lawrence. To-day the French language is the mother tongue of two million of its inhabitants. French civil law prevails and the church of the French-Canadian people enjoys practically the same rights and privileges that it enjoyed under the flag of the Bourbons. And yet this province is a unit in the great British American Confederation, the Dominion of Canada.

Quebec

In point of territorial extent Quebec is the largest of the provinces of the Dominion. Through the addition of Ungava (in 1912), its area was at once doubled; from 227,500 square miles in 1891, it had then increased to 351,873 square miles, which with the additional 351,780 square miles of Ungava (known as New Quebec) gives a grand total area of 703,653 square miles—the equivalent of about one-fifth of the total area of Canada; about one-fourth of the territorial extent of the United States of America, and about six times the area of the United Kingdom of Great Britain and Ireland. From north to south the Province of Quebec measures 1,300 miles in length (including Ungava) and from east to west 1,000 miles in breadth.

The principal arteries of drainage of the Province of Quebec are five great rivers: the St. Lawrence, the Hamilton, the East Main, the Rupert and the Nottaway. The first is well known as one of the largest rivers of the world. The other four are less well known, but are none the less almost as large.

The principal rivers of a secondary order are the Ottawa, the Richelieu, the St. Maurice, the Saguenay, and the Manicougan.

The portion of the province situate to the north of the St. Lawrence is studded with myriad lakes, many of them of considerable size. In the region of the Rupert River, there is the Great Lake Mistassini, covering 624,000 acres; the Little Mistassini, 132,000; Lake Namiskan, 36,000; Lake Obatogoman, 36,000, and many others, besides several smaller lakes in South-eastern Quebec.

CLIMATIC CONDITIONS

Extending over such a great area it is only natural to expect considerable variety of climate in the Province of Quebec; but there is everywhere these prevailing features: cold winters, short springs, and long bright, sunny summers. During the latter part of March the snow begins to disappear, and the sunshine and warm showers of April prepare the ground for the reception of crops. Grain is sown during the latter part of April, and potatoes and corn are planted by the middle of May, except in the northern parts of the province where seed time is about two weeks later. Warm summer weather sets in during June and continues well into September. July is the haymaking month, and the grain crop is harvested during August and early in September. Cattle graze from the middle of May until the last of October and sometimes well into the month of November. Snow usually falls in December. The snowfall in the part of the province north of Montreal is considerably heavier than elsewhere, and winter there

Quebec

is longer and more severe, but the cold is modified by the dry bracing atmosphere which renders winter agreeable and healthy. The mean summer temperature averages 58.3 degrees and the mean winter temperature 15 degrees. The average rainfall is 28 inches, and the average snowfall 91 inches.

The snow instead of being a drawback is a great benefit to the country. It protects the dormant vegetable life from the severe frosts, and it is a country saying that plenty of snow means a good hay crop in the following summer. Snow, too, is necessary for good winter roads, and without it lumbering operations would be almost at a standstill.

Autumn is a charming season throughout the province; the air is cool and the sunshine bright and mellow. The changing foliage, especially of the maple and birch, paints the woodland hills in crimson and gold, and gives the whole landscape a matchless beauty. In winter the greater number of the days are bright with sunshine, and they are generally dry. The charm of its summer and the beauties and sporting attractions of its rivers and lakes draw to Quebec each season thousands of visitors from many parts of the continent, who come here to seek relief from the heat of the southern cities.

POPULATION AND ITS ORIGIN

According to the census made in 1917 by the provincial authorities, the population of the Province of Quebec was 2,380,072. It has doubled in the last fifty years, as shown by the census returns since Confederation, viz.: 1871, 1,191,516; 1881, 1,359,027; 1891, 1,488,535; 1901, 1,619,898; 1911, 2,003,732.

From the point of view of origin, the population is divided as follows (according to 1911 census): French, 1,605,339; English, 153,295; Irish, 103,147; Scotch, 58,555; Jewish, 30,648; Indians, 9,993; all others, 42,255. The bulk of the English speaking element is centered in the cities. The census of 1911 gave 121,128 British and 298,878 French speaking persons living in the City of Montreal, out of a total population of 470,482. In the City of Quebec, the provincial capital, and the second in importance, there was in 1911 an English speaking population of 9,492 out of a total of 78,710.

The statistical figures for 1917 point to a considerable influx of population in the cities and towns. Montreal then claimed 737,247 souls, including Maisonneuve; Quebec, 103,246; Hull, 25,422; Sherbrooke, 23,212; Verdun, 23,000; Westmount, 23,000; Three Rivers, 21,000; Lachine, 15,550; St. Hyacinth's, 12,491, etc.

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The great valley of the St. Lawrence, with its level fields and rich, strong soil, is well adapted to growing wheat and other grains. At one time these cereals were largely produced and the wheat crop was one of the regular and most profitable means of income that a Quebec farmer had. There was a time in the last century when Quebec with a population of 500,000 produced 3,500,000 bushels of wheat, or $6\frac{1}{2}$ bushels per head, and imported no bread stuffs. But the opening of the West has changed all this. The East could not compete with the prairie wheat lands, and the Quebec farmers had to change their methods. However, during the war, in compliance with the pressing appeal of the Minister of Agriculture, wheat sowing was resumed on a larger scale, with the result that the wheat crop, which in 1916 produced a bare million bushels, reached 3,883,000 bushels in 1918, and about 7,000,000 in 1919. Figures from the last annual report of the Minister of Agriculture show that the Quebec farmers were active during the war. The area under culture increased from 4,863,850 acres in 1914 to 13,292,798 in 1918. The total value of crops, from \$98,779,000 in 1914, rose to \$271,750,900 in 1918, and the aggregate value of live stock was increased from \$122,298,071 to \$252,445,000 during the same period.

DAIRYING THE BACKBONE OF FARMING

But dairying has been for many years past the backbone of farming in this part of Canada. Quebec cheese and butter are classed among the very best on this continent, and are now making great strides in continental Europe where they were little known a few years ago, although they already had found a good market in Great Britain. The aggregate value of dairy products was \$61,378,002 in 1918, about half of which was the output of the 1,954 factories operating in the province. \$1,723,000 of the balance was exported to the United States, the surplus being absorbed by local consumption.

Over 100,000,000 acres, excluding poor and mountainous lands, are suitable for agriculture. The surveying of new townships is being pushed with vigor every year, so as to keep pace with the demand. At present 7,500,000 acres of land subdivided into farm lots is open to colonization in the new Abitibi region, Lake St. John and Saguenay; Upper Ottawa and Temiscamingue, Temiscouata, Metapedia, and Gaspesia.

The kinds of fruit successfully grown throughout the greater part of the province indicate the quality of the soil and the agricultural possibilities. Apples, plums, and even the hardier kind of grapes, are grown in all the inhabited portions of the province, and succeed admirably. Tomatoes, and even melons, which

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thrive in the open air, are regular growths, giving abundant returns. Pears succeed well in the southern part of the province, and tobacco constitutes a very important crop, chiefly in the counties north of Montreal.

MUNICIPALITIES AND ROADS

Of the 1,205 municipalities in the province, 887 are rural municipalities, and 220 incorporated as villages; the rest is composed of 16 cities and 80 towns. The municipal returns for 1917 place the value of immovable property comprised in rural municipalities at \$379,358,298, apart from non-taxable real estate, represented by churches, schools and charitable institutions.

In close connection with agriculture, the good roads policy inaugurated a few years ago by the Quebec Government has resulted in the cost of transportation of produce from farm to market being reduced to a minimum. The highway system marks Quebec as a model province for the whole Dominion. Over 350 miles of first-class highways, called provincial routes, have been completed. Including the regional and municipal roads, macadamized, gravelled, or improved under the control of the Roads Department, the total length thus attended to from 1912 to 1919 represents a grand aggregate of 3,008 miles. The speedway between Quebec and Montreal (180 miles in length) is being entirely overcoated with asphalt. Then there are the 40 miles on the Edward VII. Highway, south of Montreal, 95 miles on the Levis-Jackman road, 30 miles on the Sherbrooke-Derby Line, 25 miles between Three Rivers and Grand Mère. The cost of these improvements so far is, in official figures, \$23,694,681. It is justly considered a splendid investment, seeing that for motoring alone the money brought in and spent locally by the numberless tourists who are attracted this way represents an average of \$4,000,000 per summer.

FORESTS

The extent of the forest area of Quebec is as yet an unknown quantity. What is known to a certainty is the area of standing timber now under license, that is, 45,000,000 acres. The surplus is variously estimated from 75 to over 100 million acres. The provincial government has decided to establish two survey bases, one at James Bay and the other at Hamilton Inlet, on the Atlantic, whence exploring parties will converge inland, both being connected by wireless, and aeroplane service is planned, the object being to make as complete as possible an inventory of the forest wealth of the northern territory. Over one billion feet B.M. of timber is annually cut on the licensed limits, the revenue collected

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by the government from that source now exceeding \$2,000,000 per annum. Of the forest resources of the province, pulpwood is the main product. In its financial review published 5th January, 1920, *The Montreal Gazette* says:—

“The Province of Quebec continues to lead the other provinces in this industry. Official returns from 1918, made to the Bureau of Statistics, and covering 12 paper mills, 12 pulp and combined pulp and paper mills in this province, give the following:—

Capital invested	\$95,402,346
Salaried employees, 976, received as salary	\$1,733,969
Wage earners employed, 10,513, earned	\$9,287,869
Pulpwood consumed, 1,063,523 cords, value	\$10,798,650

Of Wood Pulp there was produced 744,865 tons, including mechanical 466,355 tons; sulphite 180,972; sulphate 124,507; soda 3,031.

CLASSES AND VALUE OF PRODUCTS

The quantity and value of wood pulp, paper and other kindred products in 1918 were as follows:—

	Tons	Value
Mechanical pulp.....	192,106	\$4,887,805
Sulphite pulp.....	104,548	6,266,735
Sulphate pulp.....	99,279	7,591,939
	—————395,933	—————\$18,746,479
Newsprint.....	296,618	\$17,980,835
Book and writing papers.....	14,241	4,413,800
Wrapping paper.....	33,618	4,244,552
Boards.....	35,827	2,740,882
Other paper products.....	28,572	2,302,438
All other products.....	.....	1,276,797
	—————408,876	—————32,959,304
Total.....	804,809	\$51,705,783

Great as is the area of spruce and balsam forests, it is not dealt with as something inexhaustible. Effective steps have been taken to protect it against forest fires, with the result that losses on that score have been enormously reduced. Tree nurseries have been established in view of reforestation, and practical measures are contemplated to regulate the cutting of timber so as to secure as much as possible the perpetuity of the forest. Since the creation in 1908 of a School of Sylviculture in the City of Quebec, where young men get the necessary training to help

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in assuring the conservation of one of the greatest national resources, if not the greatest asset of the country, more scientific methods have been employed.

The principal markets for the products of the forest are Great Britain, the United States and South America. For the American markets the lumber merchants have the choice of rail and water routes. For Great Britain and South America the ocean steamers have 1,750 miles of coast—986 on the north shore, 590 on the south shore, 175 on the Bay des Chaleurs—where they can load their cargoes of wood and pulp at the mouths of the rivers which carry down the timber cut in the interior. By the St. Lawrence, via Sorel, the Richelieu and Lake Champlain, the barge route from Montreal to New York is but 457 miles in length. By the same route the distance from Quebec to New York is only 525 miles.

The timber manufactured in Quebec in 1918-9 included: Square timber, 12,973 cubic feet; White pine, oak, etc., 124,809,129 feet; Red pine, birch, etc., 48,683,487 feet; Spruce, Balsam, etc., 800,923,286 feet; Firewood, 3,256 cords; Railway ties, 168,851; Posts and rails, 49,952 feet.

FISH AND GAME

The Maritime fisheries of Quebec comprise those Canadian waters to which have been given the names of the Gulf Division and the St. Lawrence Division. The first includes the vast peninsula of Gaspé, the County of Bonaventure, the Island of Anticosti and the Magdalen Islands. The second division embraces all the north shore of the St. Lawrence for a distance of five hundred miles from Pointe des Monts to Blanc Sablon at the entrance to the Straits of Belle Isle. The remainder of the St. Lawrence shore to the north is called the Great North, or the Canadian Labrador. Besides these there are the fisheries of the inland waters, yielding bass, doré, sturgeon, trout, maskinongé, etc., on which the revenue collected last year amounted to \$242,737, including \$81,875 as royalty on furs.

In 1918 the value of the yield of all the deep water and inland fisheries of the province was \$3,414,378, compared with \$1,808,435 in 1910. The sale of sea fish from the Gulf Division (Gaspé, Bonaventure and Saguenay) realized the sum total of \$2,462,133. The total value of the vessels, boats, canneries, ice-houses, etc., employed during the year in the fisheries was \$1,479,593. The number of men engaged in the commercial fisheries was 12,158.

The above relates to what may be called commercial fishing, but besides that there is the fishing of the sportsman, which is a



BRINGING SYRUP FOR MAPLE SUGAR TO THE FACTORY IN QUEBEC
 Where the value of the maple sugar product in 1920 is estimated at \$8,000,000.



A QUEBEC CABBAGE FIELD
 Vegetable growing is becoming a greater factor in bringing the total of that Province's field crops to almost \$275,000 000 annually.

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source of revenue to a large number of persons and to the province. It brings visitors from abroad, whose camp outfits and supplies are purchased here, and who employ many persons as guides, boatmen and camp helpers, in the hunting of moose, red deer and caribou.

The Laurentides National Park is one of the largest and grandest fish and game preserves in the world. In the lakes which are enclosed within its limits are probably the finest specimens of *salmo fontinalis* to be found anywhere. Many have already been taken exceeding nine pounds in weight, and it is certain that many larger ones are to be found there, which will dwarf the fish of the Rangeleys and the far-famed Nepigon. Roughly speaking, this park includes the central portion of the territory enclosed between the townships bordering on Lake St. John to the north and along the St. Lawrence to the south, that skirt the Saguenay on the east and stretch on the west to the limits leased to various fish and game clubs on the eastern side of the Quebec and Lake St. John Railway.

MINES AND MINERALS

The Province of Quebec may be said to take a high place as a producer of economic minerals. In some lines, notably asbestos, it takes first rank; as a matter of fact, Quebec produces 80 per cent. of the world's production of this mineral. Graphite, mica, copper, silver, gold, are also important elements in the mineral wealth of the province.

The following table gives, in summarized form, a statement of the mineral yield of Quebec for the last two years:—

	1918	1919
Asbestos.....	\$9,019,899	\$10,932,189
Asbestic.....	34,046	63,011
Silver.....	139,788	141,773
Copper and Sulphur.....	1,319,690	447,623
Mineral Water.....	6,111	12,608
Feldspath.....	4,357	11,665
Kaolin.....	19,746	13,744
Chrome Iron.....	770,955	223,321
Iron Ore and Titanic.....	33,726	Incomplete.
Graphite.....	33,274	Incomplete.
Magnesite.....	1,016,764	283,719
Mica.....	202,149	224,723
Molybdenite.....	383,252	75,154
Gold.....	32,615	27,420
Iron Oxide and Ochre.....	112,440	111,645
Phosphate.....	1,200	300
Silicia.....	61,699	50,161
Peat.....	.....	4,811
Zinc and Lead Ore.....	175,094	103,138
Building materials.....	5,340,987	7,974,084
	<u>\$18,707,762</u>	<u>\$20,701,005</u>

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The decrease in value and quantity in some cases is due to decline in demand for such minerals as molybdenite, chrome iron and magnesite since the armistice. The fact that the area over which any prospecting for minerals has been undertaken so far does not exceed 40,000 square miles out of 700,000, leaves an immense unexplored field to enterprising prospectors.

Asbestos was first discovered about forty years ago in deposits of chrysolite or serpentine asbestos in Megantic County. The present centres of production are Thetford Mines, Black Lake and Danville. The production is now more than twenty times what it was in 1913, that is, about \$11,000,000, compared with less than half a million then.

Important deposits of copper sulphuret exist in Capelton near Sherbrooke, where they were first worked in 1840. The cupriferous pyrites extracted are first used in the manufacture of sulphuric acid, the residue being then treated for the extraction of copper. It is one of the mining industries which thrived during the war on account of the heavy demand for chemicals.

Iron ore is found in various forms in different parts of the province. Important deposits of tetanic iron exist on the north shore below Quebec, and a new process for treating same commercially is under way. The smelting of bog iron ore has been carried on since its first discovery about two centuries ago in the St. Maurice region. At the present time the dredgings are reduced in charcoal kilns and produce cast iron of a high grade. There are also deposits of magnetite ore in the Laurentian region north of River Ottawa, several of which have given good results. More or less productive deposits of iron ore are to be found in the townships of Spalding, Leeds and Inverness. Chrome iron exists in the serpentine beds of Eastern Townships, as well as in the extension of same formations in the Gaspé Peninsula. During the war, chrome commanded good prices, but in this case as in molybdenite and magnesite, the demand has notably decreased. The centre of chrome activity is actually in Coleraine.

Mica is one of the leading mineral resources of Quebec. The present centre of this industry is between Gatineau and Lièvre rivers, about 25 miles north-west of Ottawa, its product being amber mica and being exclusively used in the making of electric apparatus.

Graphite or plumbago exists in large volumes in the Laurentian lands north of Ottawa River, in the counties of Ottawa, Labelle and Argenteuil. Since the inception of the works in 1847, great difficulties have ever been encountered as regards the concentration required to obtain a pure product.

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Ochre is found in different parts of the province, most of which could be used in the preparation of colours. The only place where ochre is industrially worked up is in the vicinity of Three Rivers, the supply being limited by the demand.

The gold mines of Eastern Quebec have been known for many years. First discovered in 1824, the placers of Chaudiere Valley were first operated twenty years later. Up to this time about \$3,500,000 have been extracted from the Beauce mines. A large proportion of the finds consisted in nuggets, one of which, the famous Kilgour, weighed 52 ounces. The sector which gave the best returns was the valley of River Gilbert, about 50 miles south of Quebec. The copper pyrites of Capelton also contain a small percentage of gold, which is separated from the ore in the final process. Some gold has been discovered in the Abitibi region south of the Transcontinental Railway, where prospecting is going on with results so far quite promising.

Closely associated with mica, are large deposits of phosphate in the shape of apatite. Twenty-five years ago, phosphate mining was very active in Buckingham, Ottawa county, but the high cost of extraction out of the encasing hardpan makes its production difficult from a commercial standpoint. In co-existence with mica is found feldspar, which is used in the manufacture of pottery and in dentistry for making artificial teeth.

Lead and zinc are generally found together in this province. The Wright mine on Lake Temiscamingue was the first to be worked and yielded a good percentage of argentiferous galena. Curious to say, the exact spot where the plant was installed was designated as the Mine Cove on an old chart bearing the remote date of 1744. Work is actually going on on two deposits, one at Calumet Island, Ottawa River, the other in the County of Portneuf, above Quebec. Similar deposits exist in inland Gaspesia.

Of building stone there is a great variety. Montreal is largely built of grey limestone which is quarried in the immediate vicinity, and it abounds in many other localities. Much of the stone required for the Victoria Bridge was procured from Pointe Claire, a few miles above Montreal. The limestone of which the Parliament House, the docks and the principal buildings in Quebec City are made, was quarried at St. Marc des Carrières, where it occurs in inexhaustible quantities. The immense blocks used in the colossal masonry works of the St. Lawrence Bridge, were quarried at Rivière-à-Pierre, on the Quebec and Lake St. John Railway, 60 miles from Quebec.

Fine red and grey granite is found at many places in the Eastern Townships, and is extensively worked in Stanstead

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County. Marbles occur in the crystalline series of Missisquoi, and also as a part of the Archaen of the Ottawa area; while the limestones of the Trenton, Black River and Chazy formations are quarried at many places for building stones, as well as for the manufacture of lime and cement. Extensive slate quarries are found in Eastern Quebec at Melbourne and Danville.

PUBLIC WORKS AND LABOUR

The latest annual report of the Department of Public Works and Labour, gives the following: The total railway trackage within the province is 5,251 miles, 237 of which is for electric lines, city and suburban. The province is served from east to west, by the three trans-Canadian lines, the Canadian Pacific Railway, the Grand Trunk Pacific and the Canadian Northern, the two latter now joined together as national railways.

Since 1908, 524 iron bridges have been built at a cost of \$3,664,799 under the auspices of the department, and 51 more are presently under way, the estimated cost of which is \$732,824. The government has also spent \$580,518 towards the abolition of tolls on highway bridges and turnpike roads.

Quebec laws concerning trades disputes, protection of child and women's labour, workmen's compensation and free employment bureaus, are of a sane character. An efficient staff for the inspection of public buildings, industrial establishments, hostelries, and fire prevention is maintained.

COMMERCE AND MANUFACTURES

From ports of entry in this province, exports increased from \$181,952,784 in 1915 to \$706,819,650 in 1918, and imports from \$129,988,636 to \$246,187,814, showing an abnormal inflation in exports due to the exceptional demand for supplies caused by the European war. It is, however, claimed that, when returning to normal conditions, the provincial foreign trade will retain a considerable proportion of such increase, owing to the great strides which the province is making in manufacturing, as shown by the following comparative figures:—

	1905	1915	1917
Number of manufacturers.	4,965	7,158	10,042
Salaries and wages.....	\$38,708,763	\$80,217,252	\$159,116,749
Capital invested.....	\$255,479,662	\$548,972,575	\$823,317,251

Progress in the establishment and enlarging of shipbuilding yards, pulp and paper factories and other lines, justify the expecta-

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tion that next census will show a further increase. The "back-to-the-land" apostles already observe with concern that the tables had been reversed at the last decennial census, which showed that more than half the population was concentrated in the cities and towns, instead of on the farms as before.

The actual facts are not so disparaging to agriculture as may appear at first sight. The rapid development of water-power has not only the effect of attracting and promoting new manufactures, it also decentralizes industry, brings it nearer to the farmer, creates new towns in the rural districts, which are so many new and handier markets for farm produce. Thus have we seen as the lower falls of River St. Maurice were harnessed, three thriving towns—Grand Mère, Shawinigan and La Tuquè, spring up as by magic, and in the space of a few years.

The Province of Quebec has, it is estimated, 6,850,000 potential H.P. of which only 875,000 H.P. is developed. The possibilities are almost boundless, and under the direction of the Quebec Streams Commission a great deal of work is being done towards development of water-power, such as the gigantic reservoir on the Upper St. Maurice, near La Loutre, which is the largest in the world, having a capacity of 160 billion cubic feet of water, and is capable of developing 1,000,000 horse power. Smaller basins have also been built by the same commission, one on the St. Francois River in the Eastern Townships, with a capacity of 12 billion cubic feet, and one at Lake Brule, in a remote concession of the County of Montmorency, and more work on dams of some practical importance to industry and agriculture is under consideration, which would create new hives of manufactures, not only in the old farming districts, but as far north as the Abitibi colonization region.





AN ONTARIO FRUIT DISTRICT

The average annual value of the fruit crop of this province is \$20,000,000.



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THE province known since 1867 as "Ontario" is territorially identical with the province known from 1791 to 1867 as "Upper Canada." The latter title, as set off against "Lower Canada," has reference to the relative positions of the two provinces in the valley of the St. Lawrence river which, after skirting Ontario along nearly the whole of its southern border, passes through Quebec, formerly "Lower Canada," on its way to the Atlantic Ocean. Upper Canada and Lower Canada were the two parts into which the Province of Quebec, established by Royal Proclamation in 1763 and enlarged by the Quebec Act of 1774, was divided by Imperial Order-in-Council in 1791.

A glance at the map of this part of North America will show that Ontario lies partly in the valley of the St. Lawrence and partly in the basin of Hudson Bay. The water parting between these two regions runs from a point on the Ontario-Quebec boundary between Lakes Timiskaming and Abitibi westward around Lake Nipigon and then south-westward to the international boundary at the short portage between the Pigeon and Rainy rivers. The former of these two streams empties into Lake Superior, the latter into the Lake of the Woods. The waters of this latter lake are discharged into Lake Winnipeg through the Winnipeg river, and Lake Winnipeg empties its waters into Hudson Bay by the Nelson river. The position of this great water-parting has an important bearing on the industrial potentiality of the province, especially in the light of recent explorations which have revealed the existence of a much greater area of agricultural land in the Hudson Bay basin than was formerly supposed. The province has an area of 407,262 square miles.

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CLIMATE

It would be quite misleading to take latitude as a trustworthy indicator of either actual or average temperature in Ontario. Longitude has quite as much to do with it as latitude, and altitude as much as either. Great bodies of water exercise a modifying influence on the temperature of the localities adjacent to them. It is obvious, therefore, that there is a much wider diversity of climate in Ontario than its mere distance from the Equator would suggest. The most southerly part of the province is the county of Essex, in latitude 42° north; the most northerly is the mouth of Black Duck river on the west shore of Hudson Bay, almost in latitude 57° . In longitude it extends from about 74° to 95° west. A better idea of its average latitude may be gathered from a few suggestive facts. Owing to causes which are somewhat obscure, the isothermal lines across Ontario and the adjacent States vary extremely from straight lines, but on the whole the mean January temperature of this province, and of the lake region generally, is much higher than in the basin of the Mississippi and Missouri rivers. Southern Ontario is as warm in January as Northern Missouri, two hundred miles further south, and Northern Ontario east of Lake Superior is as warm as Central Iowa, four hundred miles nearer the Equator.

In the old settled part of the province the climate conditions are peculiarly favorable to the growing of nearly every sort of grain and fruit, including peaches and grapes. From this area the original forest has been for the most part cleared away, but abundance of woodland still remains in the northern part to exercise a moderating effect on its climate, especially as regards rainfall. Regarding Northern Ontario, the winters are distinctly severe, but as the climatic tables for Moose Factory (James Bay), Abitibi and Haileybury indicate, the summers are warm. These places, respectively, are 534, 368 and 264 miles north of Toronto. The mean temperature at Moose Factory in January is 25° lower, and at Haileybury 15° lower than at Toronto, but in May they are respectively 10° and 2° lower, and in July 6° and 2° lower. Temperatures of over 80° are not infrequent in Northern Ontario, and 90° and over usually occur several times each summer.

PHYSICAL FEATURES

Ontario is divided physiographically into two very unequal portions by a line running irregularly from the Georgian Bay, near the mouth of the Severn river, eastward to a point near Brockville on the St. Lawrence, and thence northward toward Arnprior on the Ottawa. In general character the part south

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and east of this irregular line is well adapted for agriculture, especially mixed farming, while the much larger portion trending northerly and westerly from the same line is broken up by irregular masses of rock, studded with lakes, and available for agriculture generally in detached portions varying in extent from small patches to large areas, one being sixteen million acres in extent.

Northern Ontario is in extent five times greater than Southern Ontario, though the latter is the most populous part of the province. What settlement there is north of the irregular line already defined is scattered over the districts of Muskoka, Parry Sound, Nipissing, Timiskaming, Sudbury, Algoma, Thunder Bay, Rainy River, and Kenora, along the lines of the Grand Trunk, the Canadian Pacific, the Timiskaming and Northern Ontario, the Algoma Central and Hudson Bay, and the Canadian National Railways.

The limestone formation of southern Ontario is broken through by an extension southward of the Laurentian range between Kingston and Brockville. This includes the archipelago of the "Thousand Islands" in the St. Lawrence River. The western part of southern Ontario is a plateau of which the eastern side is the Niagara escarpment and has attained a well-established reputation as a desirable farming and fruit-growing district. The Welland Ship Canal, constructed to enable vessels to pass from Lake Erie to Lake Ontario, is supplied with water from the former. The descent of the escarpment from Thorold to St. Catharines is made by several locks, and, owing to the nature of the locality there is available a great force of water utilised for the production of electric energy. The central portion of southern Ontario, from west of Toronto to Kingston, is traversed diagonally by the Trent River. Both the central and the eastern portions are devoted to farming, and are occupied by an intelligent and prosperous population.

Northern Ontario is traversed from east to west by the curious depression in which the waters of Lake Nipissing are carried by the French River westward to the Georgian Bay, and the other waters flowing into it are taken by the Mattawa eastward to the Ottawa. Two thousand and sixty square miles of this densely wooded upland have been reserved from settlement under the name of the "Algonquin Park," this having at a remote period been part of the territory occupied by the great race of Indians so designated. All that part of northern Ontario south of the Nipissing depression is literally dotted with lakes of all sizes, most of them abounding with fish, and many of them being parts of customary and picturesque canoe routes. The settlements are in "pockets" of arable land interspersed among the rocks

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and lakes. West of Lake Nipissing, in a northerly direction brings us to the great nickel area on the eastern side of which the important railway and mining centre of Sudbury is situated. From this point south-westerly a railroad extends to Sault Ste. Marie. Lumbering and nickel mining are the chief industries along the eastern part of this branch line, but prosperous settlements are traversed by the western part. Between the Nipissing valley and the height of land the rock formation is pre-Cambrian, still largely covered with valuable pine timber, a large area of which has been reserved about Lake Timagami. Further north occurs the new settlement in the alluvial clay valley, extending northwesterly from Lake Timiskaming and forming the front entrance to the enormous clay belt of sixteen million acres beyond the water-parting. At Sault Ste. Marie, where the outlet river from Lake Superior makes a rapid descent, has been established various steel industries which draw on Michipicoten for a supply of iron ore, brought to the smelter at the Sault by the Algoma Railway. The region immediately north of Lake Superior is mostly a wilderness, but north of the water-parting there will probably soon be thriving settlements. Port Arthur and Fort William are rapidly developing into important cities.

The most important and singular feature of Northern Ontario is the undeveloped and unsettled "clay belt" already referred to. It stretches continuously from the Quebec boundary westward into the Thunder Bay district, and forms part of the Hudson Bay slope. It contains sixteen million acres in an almost unbroken stretch of good farming land, similar to that already tested by several years of settlement in the adjacent Timiskaming district. The climate is similar to that of Manitoba. An abundance of wood for fuel, building, and commercial purposes, and plenty of pure water is available in every part of this area. Pulpwood at present growing on the whole northern slope is estimated at 288,000,000 cords.

AREA, POPULATION AND HISTORY

The land area of Ontario, 230,000,000 acres, nearly 360,000 square miles, is about twice that of France or Germany, and fully three and a third times that of the British Isles.

The population of Ontario, as estimated in 1919 is 2,820,909, the great majority occupying that part of the province designated above as "Southern Ontario," the last portion of which was settled about half a century ago. During the past thirty years settlement has followed lumbering operations into the Laurentian district, and now much of the area south of Lake Nipissing has been taken up for agricultural purposes. The Manitoulin Island

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and the north shore of the Georgian Bay have been similarly developed during the same period. Settlement in the northern clay belt and the mining industry in Northern Ontario are now the chief factors in the trend of development aside from those which have caused so marked an increase in population in urban areas.

Southern Ontario was first settled by Britishers who preferred to remain subject of the Empire and crossed the boundary when the United States renounced allegiance to their mother land. They now bear the honored name of "United Empire Loyalists." Other immigrants came in slowly. The Canada Company colonized parts of Wellington and Huron counties. Colonel Talbot founded a settlement in Elgin County. Glengarry was peopled very largely by Scottish Highlanders, and Lanark by emigrants from the Lowlands of Scotland. The newer parts of Southern Ontario were settled chiefly by those who emigrated from other settlements. Only of late years, under the stimulus of railway construction and mining work, have foreigners from Europe made their appearance in any considerable numbers; these include Poles, Russians, Germans, Swiss, Italians, Finns, and Scandinavians from Europe and Syrians and Armenians from Asia. Very few French people have ever come direct to Ontario from France, but in several localities there are large settlements of French-Canadians from the Province of Quebec.

The first English settlers desired their new country to be administered by English law, and this was one reason for the division in 1791 of the old Province of Quebec into Upper and Lower Canada. A Legislative Assembly was granted each. On September 17th of that year the first Legislature of Upper Canada met at Newark (Niagara) under Lieutenant-Governor Simcoe. The House of Assembly consisted of sixteen members. In the following year, York, now Toronto, was founded, and in 1796 the seat of government was removed there from Niagara.

During Governor Simcoe's tenure of office, from 1792-1796, the second migration of Loyalists began, and shortly afterwards the Talbot settlements were made in the townships in the rear of Lake Erie. By the year 1812, the population of Upper Canada had increased to about 75,000, scattered along the frontier from Lake St. Francis to the Detroit River. During the war of 1812-14 Upper Canada was the scene of many conflicts and later of internal strife incident to struggles for responsible government.

AGRICULTURE

The chief natural resources of Ontario, in the order of their comparative importance, are its arable lands, timber areas, mineral deposits, fisheries, and game. These furnish, in the form

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of raw material or manufactured products, nearly all the merchandise exported from the province, besides affording means of subsistence to its inhabitants. About fourteen million acres of land are under cultivation, while the total amount of farm land assessed for taxation purposes amounts to fully 25,000,000 acres. The number of farmers is estimated to be 180,000, the average size of their farms 140 acres, and the average value \$6,500.

Southern Ontario consists almost entirely of agricultural land. The soil is extremely varied, but is quite capable almost everywhere of being by means of "mixed" farming, maintained in a high state of fertility. There is an abundance of water in every part of this region.

In the period of 38 years between 1882 and 1919 the average acreage yield, aggregate yield and yield per acre of the chief products of Ontario farms were as follows:—

	Acres	Bushels	Yield per Acre. Bushels
Fall wheat.....	808,299	17,286,437	21.4
Spring wheat.....	331,121	5,402,502	16.3
Barley.....	638,036	18,032,330	28.3
Oats.....	2,331,364	83,668,684	35.9
Peas.....	510,775	9,748,946	19.1
Potatoes.....	157,881	18,041,602	114.3
Turnips.....	118,583	50,876,560	429

Including the area devoted to the raising of corn, carrots, and other vegetables, and to mixed grains, hay and clover, the total acreage under crop in 1919 was 9,915,884. The average of all field crops for 38 years is 8,687,870. In 1902 there were 48,185,125 bushels of apples grown from 7,024,890 trees and there were half as many trees under bearing age. The following figures show the amount of live stock owned by the farmers of Ontario in 1919:—Horses, 719,569; cattle, 2,927,191; sheep, 1,101,740; hogs, 1,695,487; poultry, 11,705,809. The latest available statistics show that during the twelve months ended June 15, 1918, the following were sold or slaughtered:—Horses, 80,984; cattle, 932,691; sheep, 449,268; hogs, 2,130,060; poultry, 6,516,460, valued at \$126,742,038.

Dairying is one of the most important branches of Ontario agriculture. Ontario exports more cheese than the United States, and on the British market the quality of the product is admittedly superior. Much of the cheese consumed by the British public is made in Ontario, under the factory or co-operative system and not in the homes of the farmers. The cheese makers managing these factories have for the most part received their training

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in government dairy schools. By these methods a superior and uniform product is secured. The making of butter is also carried on in a similar manner.

The factory output of condensed and powdered milk for the year 1919 was valued at approximately \$10,000,000, creamery butter at \$17,545,000; cheese at \$27,729,000, milk and cream used otherwise, dairy butter, and ice-cream \$25,000,000. The total value of Ontario dairy products for 1919 is \$80,274,000.

The stimulating and invigorating qualities of the climate, the remarkable freedom from disease, the nutritive qualities of its roots and grasses and the skill and enterprise of its live stock breeders have all contributed to make the province compare favorably with any part of the continent in the variety of breeds, the number of pure-bred animals produced, and in the general excellence of the individual animals. Recognising this fact, American breeders resort largely to Ontario in the same way as they do to Great Britain, when desirous of introducing new blood into their herds and flocks and consequently the United States is Ontario's best foreign market for pure-bred horses, cattle, sheep and swine. Leading flocks, herds and studs of Ontario have been founded upon animals imported from Great Britain, and pedigrees trace back to British records. From that source breeding animals are still secured as occasion demands.

Fruit is grown extensively in the province, the orchard area being 350,000 acres, and there are 9,882 acres in vineyards. The average annual yield of apples is about 12,000,000 bushels and of grapes about 15,000 tons. The average value of a year's fruit crop to the producers is \$20,100,000, comprising: apples, \$12,500,000; peaches, \$1,000,000; grapes, \$1,000,000; pears, \$1,000,000; plums, \$800,000; cherries, \$300,000; small fruits, \$3,500,000.

The south-eastern portion of the Niagara peninsula is noted for its peaches, grapes and cherries. Hardier fruits are grown successfully in all parts of the southern half of the province.

Large shipments of fruits are sent by rail annually to the Prairie Provinces. Owing to the war, embargo against fruit shipments to Great Britain, apple exports which once totalled hundreds of thousands of barrels annually, temporarily ceased. In 1919 the trade was resumed under favorable circumstances. Associated with the fruit growing industry is that of apiaries from which the annual product is 15,000,000 pounds.

FORESTS

The forest area of the Province of Ontario is estimated at 260,000 square miles. Included in this estimate is Patricia, the



A SMALL FLOCK OF ONTARIO'S 1,100,000 SHEEP IN 1919



JUDGING CATTLE AT CANADIAN NATIONAL EXHIBITION, TORONTO

Canadian breeders have an established world-wide reputation for the production of pure-bred stock.

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most northerly district, with 100,000 square miles of wooded lands. The total area covered by timber license or other rights is 40,000 square miles. The Government of Ontario has permanently withdrawn from settlement nearly thirteen million acres of crown lands as Forest Reserves. These are: Nipigon, 7,300 square miles; Timagami, 6,000; Mississaga, 3,000; Quetico, 1,500, being a total of 17,800 square miles in Northern Ontario; Algonquin Park, 2,060; Rondeau Park, 8; Eastern, 100; being a total of 2,168 square miles in Old Ontario, or a grand total for the province of 19,968 square miles. The greater portion of Algonquin Park is covered by license, which authorizes the cutting of certain classes of timber. While considerable saw timber will be found in the southern part of the northern region, the great value of this forest at present is its enormous supply of pulpwood. It is estimated to contain at least 200 million cords of pulpwood, exclusive of the District of Patricia.

Large pulp and paper industries are established at different points throughout the province, chiefly Northern Ontario, which derive their supplies of raw material from the extensive pulpwood areas belonging to the Crown. These industries are situated at Thorold, Ottawa, Iroquois Falls, Smooth Rock Falls, Sturgeon Falls, Espanola, Sault Ste. Marie, Port Arthur, Fort Frances and Dryden, while similar plants are to be constructed in the vicinity of Kapuskasing and in other localities. The daily output of each of these mills ranges from 75 to 400 tons of pulp and paper per day.

The total production of sawlogs and square timber in 1919 was 331,109,204 feet board measure as compared with 253,539,089 feet board measure in 1918. The cut of pulpwood was 320,195 cords in 1919 and 338,563 cords in 1918, and of railway ties 5,140,654 in 1919 and 2,094,099 in 1918. The total revenue from woods and forests for timber dues, bonus, ground rent, transfer fees, etc., increased from \$1,635,684 in 1918 to \$1,803,081 in 1919. The value of the total forest cut in 1918 was about \$42,000,000. The capital invested in 1918 amounted to \$44,843,439. The salaries and wages paid to employees, fuel and materials used, and miscellaneous expenses totalled \$31,485,275.

MINES AND MINERALS

The following figures giving value of production by five-year periods show the rate of growth since the establishment of the Ontario Bureau of Mines in 1891. For purposes of comparison figures for the last year prior to the Great War are given, and also for each year since the outbreak of hostilities.

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VALUE OF ANNUAL MINERAL PRODUCTION IN ONTARIO

Year	Value	Year	Value
1891.....	\$ 4,705,675	1914.....	\$ 46,295,959
1896.....	5,235,000	1915.....	54,245,679
1901.....	11,831,086	1916.....	65,303,822
1906.....	22,388,373	1917.....	72,093,832
1911.....	41,976,797	1918.....	80,308,972
1913.....	53,232,311	1919.....	57,482,113

Nickel.—To the west of Sudbury is found the world's chief source of nickel ore which was brought into particular prominence during the war. This metal was first discovered in 1848 at the Wallace mine near the mouth of the Whitefish River, which enters Lake Huron some distance east of Bruce mines. The mineral attracted little attention however, until 1883, when the Canadian Pacific Railway was constructed through this section. The first deposit of nickel actually found near Sudbury was what afterwards became known as the Murray mine. From 1887 to the end of 1919 nickel-copper ore smelted totalled 14,090,635 tons and contained 393,646 tons of nickel and 231,782 tons of copper. In 1918 a record was established for the production of nickel and copper. Ores smelted totalled 1,559,892 tons from which nickel-copper matte was produced containing 45,886 tons of nickel and 23,483 tons of copper, or 3,999 and 1,053 tons respectively in excess of any former year. Nickel-copper ores from the Sudbury camp are an important source of platinum, palladium and metals of the rhodium group. A large nickel refinery has been in operation at Port Colborne since July, 1918, and the first two converters of a purely British enterprise at Nickelton went into operation early in the present year. An electrolytic refinery on the Ottawa River, near Hull, Quebec, is well advanced and it is expected will shortly be in use.

Silver.—Since the discovery of silver at Cobalt in 1903, shipments from the camp and outlying silver areas up to December 31, 1919, were 303,610,836 ounces, worth \$182,039,972. Total figures for the province in 1919 show an output of 11,383,905 ounces, valued at \$12,913,316. Although production has declined gradually since 1911 when 31,507,791 ounces were marketed, the value of metallic silver in 1919, owing to high prices, exceeds that for the banner year of production. Outlying camps, including South Lorrain, Casey Township and particularly Gowganda, have contributed to the total output. In addition, a small quantity of silver is recovered from the refining of gold and nickel-copper ores.

Gold.—Prior to the discovery of gold at Porcupine in 1909, mining of this precious metal, in western Ontario chiefly, was carried on with indifferent success. Since 1910, when the Porcupine camp arrived at the producing stage, Ontario's output of gold has exceeded the product of any state in the United States

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except California. For 1919 the gold output of the province was 505,963 ounces, worth \$10,451,688, the largest output to date. Operating conditions have improved gradually since the termination of the war. Porcupine, to the end of 1919, has produced \$54,139,777 in gold. Kirkland Lake is now coming to the fore rapidly, and the newer fields at Larder Lake, Boston Creek and West Shiningtree give considerable promise.

Dividends.—Dividends and bonuses paid to December 31st, 1919, to shareholders of joint stock mining corporations which make public reports, were \$78,334,762 from the Cobalt silver camp, and \$15,545,238 from the Porcupine and Kirkland Lake gold camps.

Non-Metallic Minerals.—Construction materials, including brick, stone, lime, cement, etc., were produced in greatly decreased volume during the war. Production of certain non-metallic minerals, however, was stimulated, notably graphite, fluorspar, quartz, iron pyrites for sulphuric acid manufacture, and petroleum. The total value of non-metallic minerals for the five-year period prior to the war increased steadily from \$10,052,879 in 1909 to \$15,724,376 in 1913.

Mining Laws.—Under the Mining Act of Ontario, patent of a mining claim of 40 acres may be obtained after performing 240 days' assessment work, and on payment of \$2.50 or \$3.00 per acre, depending on location in surveyed or unsurveyed territory. A miner's license costing \$5 entitles a prospector to locate three claims in each mining division in any year.

FISHERIES

The Great Lakes forming the southern boundary of Ontario constitute the largest freshwater fishing grounds in the world. The principal fish taken are herring, in Lakes Erie, Ontario and Superior; trout, in Lakes Huron and Superior, and in Georgian Bay; whitefish, in Lakes Erie, Huron and Ontario, and in Lake of the Woods and Rainy River; pickerel in Lakes Erie and Huron, and in Lake of the Woods and Rainy River; pike, in Lakes Erie and Ontario, and in Lake of the Woods and Rainy River; sturgeon, in Lake of the Woods and Rainy River, Lake Erie, Lake St. Clair and River Thames. The classes specified are not confined to these waters, but are found in innumerable lakes and streams in all parts of the province.

Hudson Bay, part of which is contiguous to Ontario, has an area of 500,000 square miles, straits excluded. Investigations indicate that over a hundred known species of fish, of the best varieties, abound in its waters, as well as the whale and the fur-bearing seal.

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YIELD AND VALUE OF ONTARIO FISHERIES YEAR 1918

Kinds of Fish	Quantity	Price	Value
Herring, salted.....lbs.	331,550	\$0.10	\$ 33,155.00
Herring, fresh....."	19,384,086	.05	969,204.30
Whitefish, salted....."	165,650	.10	16,565.00
Whitefish, fresh....."	5,827,513	.10	582,751.30
Trout, salted....."	613,154	.10	61,315.40
Trout, fresh....."	6,681,100	.10	668,110.00
Pike....."	1,386,818	.08	110,945.44
Pickarel (Dore)....."	1,720,335	.10	172,033.50
Sturgeon....."	239,149	.15	35,872.35
Eels....."	161,042	.06	9,662.52
Perch....."	2,428,200	.05	121,410.00
Tullibee....."	632,894	.06	37,973.64
Catfish....."	670,507	.08	53,640.56
Carp....."	1,208,258	.02	24,165.16
Mixed and Coarse Fish....."	3,729,323	.05	186,466.15
Caviare....."	9,277 ½	1.00	9,277.50
Sturgeon Bladders.....No.	2,061	.60	1,236.60
Pickarel (blue).....lbs.	813,259	.10	81,325.90
Total.....			\$3,175,110.32

In 1917, 42,834,511 lbs. and in 1918, 46,002,115 lbs. were taken from Ontario fishing grounds for commercial purposes.

Ontario's virgin territory, hundred of miles east and west and extending northward to the land of eternal snows is an empire in itself. Expanse of forest interspersed by thousands of lakes and rivers is a paradise for the sportsman and explorer. This region is now easy of access, as railways have pushed their bands of steel into regions beyond normal settlements. Within twenty-four hours' ride from Toronto, the sportsman can detrain and find himself in the very heart of unexploited big game haunts. Deer, moose, caribou and bear roam here as free as did their species centuries ago and here the stream and lakes teem with millions of the finny tribe, from the royal sturgeon of one hundred pounds in weight to the gamey fighting black bass, speckled trout, maskinonge and the not-to-be despised pike and pickerel.

LAND AND WATER TRANSPORTATION

The St. Lawrence River stands first as the historical first avenue of traffic from Europe to North America and by it, commerce and people first found access to territory now part of

Ontario

Ontario. Commercially the St. Lawrence waterways have yielded first place to railways. Those now in the province are as follows:

Grand Trunk and branches	3,079 miles.
Canadian Pacific and branches	2,987 "
Canadian National Railways and branches	3,247 "
Temiskaming and Northern Ontario Railway and branches ..	327 "
Algoma Central and Hudson Bay Railway and branches	333 "
All other systems	1,084 "

Electric radial lines extend from the chief cities into the country, and there are also rural lines affording subsidiary transportation for passengers, light freight and farm produce. The total length is 767 miles.

Ontario has a magnificent system of inland waterways in the form of the Great Lakes and rivers. From Port Arthur on Lake Superior, to tidewater on the St. Lawrence at Quebec, the distance is about 1,400 miles. This chain of waterways gives to the province maritime advantages in cheap transportation.

LAKES

Lakes	Length, miles	Average breadth, miles	Area, sq. miles	Surface above sea- level, feet	Depth of water, feet
Superior	420	80	31,800	602	1,000
Huron	270	70	23,200	581	1,000
Michigan	350	60	23,000	581	700
St. Clair	25	25	445	576	16
Erie	250	38	10,000	572	200
Ontario	190	55	7,260	246	600

Other important lakes in the province are: Abitibi, 356 square miles; Eagle, 127; La Croix, 23; Lake of the Woods, 1,851; Mille Lacs, 104; Muskoka, 54; Nipigon, 1,730; Nipissing, 330; Rainy, 324; Rice, 27; Sandy, 300; Scugog, 39; Seul, 392; Simcoe, 300; St. Joseph, 245; Timagami, 91; Timiskaming, 117; Trout, 300; and others.

The chief ports on the Canadian side of Lake Superior are Fort William and Port Arthur, where millions of bushels of wheat are shipped from the prairie provinces of the Northwest; on the main part of Lake Huron—Sarnia, Goderich, Kincardine, and Southampton; on Georgian Bay—Warton, Owen Sound, Collingwood, Midland, Port McNicoll, Depot Harbor, Parry Sound and Key Harbor; on Lake Erie—Rondeau, Port Stanley, Port Burwell, Port Dover and Port Colborne; on Lake Ontario—Niagara, Port Dalhousie, Hamilton, Toronto, Whitby, Port Hope, Cobourg, Trenton, Belleville, Picton and Kingston; and on the St. Lawrence—Brockville, Prescott and Cornwall.

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The number and tonnage of vessels for the Province of Ontario on the Dominion Register as at December 31, 1919:—

Vessel	Number	Gross tonnage	Net tonnage
Sailing.....	561	107,439	100,541
Steam.....	1,425	350,321	219,524



A TYPICAL STEAMER OF THE CANADIAN MERCHANT MARINE

CANALS

The canals along the route of the Great Lakes and the St. Lawrence River between Port Arthur and Montreal are: the Sault Ste. Marie Canal, $1\frac{1}{4}$ miles long; the Welland Canal, $26\frac{3}{4}$ miles, connecting Lakes Erie and Ontario; and the St. Lawrence Canals, $45\frac{1}{2}$ miles long, making $73\frac{1}{2}$ miles in all. The complete waterway distance between these two cities is $1,223\frac{1}{2}$ miles.

Two other canal systems are: (1) the Rideau River system, from Kingston to Ottawa, and (2) the Trent Valley system, from Lake Ontario at Trenton through the Kawartha Lakes to Georgian Bay.

Ontario

The Murray Canal, 5 1-6 miles long, divides Prince Edward County from the mainland and gives a south-west entrance into the Bay of Quinte.

The Welland Ship Canal is under construction. When completed it will supersede the Welland Canal and afford 25 foot navigation instead of 14 feet as at present.

With the exception of two of the St. Lawrence River Canals, the Soulanges and Lachine, totalling 22½ miles in length, all of the above-mentioned canals are in the Province of Ontario.

MANUFACTURES

Ontario is the chief manufacturing province of the Dominion. It has about half the factories of all Canada, and produces almost every kind of manufactured article. All the western towns and cities, with nearly all the villages, and all the eastern cities and large towns are engaged in some kind of manufacturing. There are over 15,000 factories, mines and places of construction in the Province, which give employment to 375,000 workmen and which have an annual payroll of \$285,000,000. The capital invested in manufactures exceeds \$1,336,000,000 and the value of the annual output is \$1,535,000,000. The imports and exports, domestic and foreign, of the province during the fiscal year ended March 31, 1920, were as follows: Imports dutiable, \$327,435,045; free, \$201,874,959; total, \$529,310,004; exports, domestic, \$288,788,185; foreign, \$23,780,285; total \$312,568,470.

Among the leading manufactures are the production of iron and steel, agricultural implements, carriages and wagons; motor vehicles, steam engines, locomotives and machinery of all kinds; furniture, carpets and house-furnishings; cloth, knitted goods, clothing and similar articles; wooden ware, paper, wall-paper, pulp, etc.; steamboats and steam and electric cars; organs and pianos, gramophones and other musical instruments; phonograph records; foundry products; leather and rubber; electric lamps and bulbs; foodstuffs; aerated waters, etc.

The leading centres of population and industrial life are: Toronto,* on Lake Ontario, the provincial capital, population over 500,000; Ottawa, on the Ottawa River, the federal capital, 110,000; Hamilton, on the western shore of Lake Ontario, 110,000; London, in the heart of southern part of the province, 60,000; Kingston, at the eastern end of Lake Ontario, 24,000; Brantford, west of Hamilton, 33,000; Windsor, 32,000; Peterborough, 29,000; Kitchener, 22,000; St. Thomas, 18,000; Stratford, 18,500; Guelph, 18,000.

* See article on Toronto.



ONTARIO PARLIAMENT BUILDINGS, TORONTO



THE RESIDENCE OF THE LIEUTENANT-GOVERNOR OF ONTARIO, TORONTO



Manitoba



On the 15th of July of this year the people of Manitoba celebrated the 50th Anniversary of the admission of the province to the Canadian Confederation. As the lives of provinces and states go, fifty years is a short span, but few have a record of growth in civic status such as possessed by Manitoba.

The Dominion Census of 1871 gave Manitoba a population of 25,228; in 1881 it was 62,260; in 1891 it was 152,506; in 1901, 253,311; in 1911, 455,614 and the special decennial census of June, 1916, shows the population of the province as 553,860. In 1919 the Dominion Government adopted an estimate of 613,000 and the known increase in the past year is such as to make it reasonably certain that the present population is between 620,000 and 625,000.

The boundaries of the province have been altered on three occasions. The original province as admitted to Confederation in 1870 had an area of 13,000 square miles. The Federal Government in 1881 extended the boundary west to the 101st meridian, northerly 250 miles and easterly so as to have Fort William and Port Arthur as ports on Lake Superior. This Act gave the province of Manitoba an area of 154,000 square miles. The Province of Ontario protested against the territory which had been taken from it in this adjustment and litigation resulted that terminated in favor of the older province. The Privy Council's decision was that the western boundary of the old province of Quebec extended to the head waters of the Mississippi at Lake Itasca and not at the junction of the Ohio and Mississippi Rivers. This decision reduced the area of the province to 73,856 square miles. It was in 1912 that the province was extended northward to the 60th parallel and eastward to a line drawn from the north-east angle of the original boundaries

Manitoba

of the province to the most easterly portion of Island Lake and thence north-east to intersect the southern shores of Hudson Bay in longitude 89 degrees. The added district comprised 178,000 square miles and the Province of Manitoba is therefore now larger than Germany, Holland and Belgium combined. The extension of the boundaries to Hudson Bay made Manitoba a maritime province with ocean ports at Port Nelson and Churchill. The Hudson Bay Railway, but a small portion of which is uncompleted, will give direct access to world water routes for the immense agricultural and industrial output of the whole of Western Canada.

ACHIEVEMENTS IN AGRICULTURE

Manitoba is essentially an agricultural province and it is likely that this will continue to be its most important industry for many years to come. Soon after its settlement its wheat became widely known for its bread-producing qualities, and hence the names Manitoba No. 1 Hard and Manitoba No. 1 and 2 Northern are to-day the standard grades of hard wheat everywhere. The fertility of the soil and climatic conditions are favorable not only for grain growing* but for mixed farming and stock raising. It is a matter of official record that grain crops and in fact crops of every kind ripen in an exceptionally short time and there is ample proof of the unusual fertility of the soil in the success which attended the exhibiting of Manitoba farm products at the International Dry Farm Expositions held yearly in the United States.

At Peoria, Illinois, in 1917, Manitoba entries won the first three prizes for hard red spring wheat, also first for wheat, rye, barley, potatoes, mangels, beets, cauliflower, and garlic. That this success was no accident was proved at the 1918 Exposition held at Kansas City, Missouri, where Manitoba entries carried off no less than 81 prizes, including the first state or provincial prize for collection of vegetables, the first country prize for collection of vegetables, sweepstakes for vegetables, first and sweepstakes for hard and red spring wheat, first for rye, first for wheat and oats, sweepstakes for oats, first for alfalfa, first for barley, first for potatoes, first for cabbage and parsnips, and many other prizes for both grains and vegetables. In 1919, at the Exposition again held at Kansas City, Missouri, the Manitoba entries were quite as successful. They won 31 first prizes including the world's championship for a collection of vegetables, the world's championship for small grains (wheat, oats, barley, and

* For field crop statistics see Appendix XVIII.

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rye), the world's championship for the most attractive exhibit and the second trophy for the most comprehensive exhibit. One Manitoba farmer had the unique honor of winning the silver cup for the best individual farm exhibit in the dry farmers' section while another Manitoba farmer's exhibit won second. In connection with these competitions it is to be remembered that they were open to every province and state in North America and that the entries were very numerous and the competition exceedingly keen.

STOCK RAISING

While the province of Manitoba is best known to the outside world for its hard wheat and other grains, the experiences of the past ten or fifteen years indicate that its real agricultural future will be along the line of general or mixed farming. There has been a steady trend in this direction with the result that to-day there are few farmers in the province who devote their energy entirely to grain growing. Stock-raising and dairying have proved exceedingly successful and fruit growing, bee-keeping, poultry raising and the raising of vegetables and roots in large quantities, not only for stock food but for the market, now constitute a very large part of agricultural industry.

Stock-raising has been particularly successful. The climate of Manitoba is favorable for live-stock of all kinds. The exceptional amount of bright sunshine all the year round is one of the important factors, as also the great abundance and unusual richness of the natural feeds which grow in profusion in all parts of the province. It is a matter of record that stock can be turned out and fed on the natural pastures from May of every year and can usually remain out on these pastures until November 15th or later, before they require prepared feed. Cattle can be wintered out-of-doors in Manitoba without trouble and with splendid results and this course is pursued every year by some of the most successful live-stock men in the province. The following statistics show the number of cattle and other live-stock in the province in 1919, also the number marketed at the Union Stockyards, Winnipeg, in the same year.

LIVE STOCK

According to Crop Reporting Districts.—(June Estimate.)

District	Horses	Cattle	Sheep	Swine
North Western.....	90,953	181,965	22,506	52,031
South Western.....	77,789	115,310	31,669	37,803
North Central.....	78,754	198,150	38,108	55,382
South Central.....	75,736	124,195	38,053	58,964
Eastern.....	56,124	162,151	36,834	57,362
Total.....	379,356	781,771	167,170	261,542



HOW THE PROBLEM OF EXTENSIVE CULTIVATION IS SOLVED ON THE PRAIRIES



CUTTING TIMOTHY HAY

A scene indicating harvesting methods in Western Canada. Increasing live stock production necessitates greater fodder crops.

Manitoba

NUMBER OF ANIMALS RECEIVED FROM STATIONS IN MANITOBA AT THE UNION STOCK YARDS, ST. BONIFACE, DURING 1919

	Horses	Cattle	Sheep	Hogs
January.....	38	6,346	365	19,107
February.....	76	5,273	350	17,631
March.....	49	5,223	575	13,029
April.....	114	6,179	162	12,079
May.....	35	3,479	464	5,894
June.....	47	2,100	529	10,185
July.....	36	5,172	2,057	13,517
August.....	35	11,598	3,484	4,951
September.....	283	11,230	6,092	2,636
October.....	62	29,591	12,654	8,563
November.....	37	16,907	5,119	11,708
December.....	264	7,421	2,784	13,462
	1,076	110,519	34,635	132,762

Dairying has made tremendous strides in the past few years and the record of production furnishes ample proof of the adaptability of all sections of the province to this important and very profitable industry. It is a matter of record that in the year 1912 the Province of Manitoba actually imported 55 carloads of creamery butter, most of which came from the Eastern Townships of Quebec. In 1915 Manitoba creameries exported 50 carloads of No. 1 creamery butter and in 1919 the export had increased to 150 carloads valued at \$1,750,000. The total value of dairy products in 1919 was \$16,789,925. Manitoba No. 1 creamery butter has been steadily winning its way in the best markets on the continent until to-day it commands the top price in Toronto, Montreal, Chicago and New York, as well as in the export market for Great Britain. There are 44 creameries in the province.

The increase in dairying has been steady for the past 15 years, and there is every indication that it will become one of the largest and most important branches of the agricultural industry in the province.

LUMBERING

Lumbering has always been and will continue to be of importance among the industries of Manitoba. For many years past the average cut of commercial lumber has averaged in value over one million dollars a year, the greater part of which comes from the heavily wooded districts in the northern part of the province. Large areas along the northern shores of Lake Winnipeg carry pulpwood of very fine quality. There are also immense areas of pulpwood in the far northern country which also affords prac-

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tically unlimited water-power for hydro-electric development. With the growing demand for pulpwood for paper manufacturing it is a matter of but a very short time before the extensive pulpwood areas of Manitoba will be developed.

FISHERIES AND FUR

The fishing industry so far has been confined largely to the lakes in the older settled parts of the province, notably Lake Winnipeg and Lake Manitoba, in which abound quantities of whitefish, pickerel and other valuable species. The value of the average catch for a number of years past has been from \$1,000,000 to \$1,500,000, but with the opening of transportation in the new northern territory and the development of the known potentialities of Hudson Bay, which is certain to come when the Hudson Bay Railway is completed, will multiply the value of Manitoba fisheries many times. Hundreds of lakes and rivers in the northern country are known to teem with fish of many useful species.

Trapping, as carried on to date, is not commensurate with the possibilities of that industry. Chiefly originating in the northerly regions, exports of pelts in 1919 amounted to nearly \$2,000,000, of which over \$600,000 was marketed at The Pas. The increased price of furs and the great demand for them has attracted attention to this industry.

MINING

Mining in Manitoba is an industry as yet in its comparative infancy but the outlook is exceedingly good and it is the recorded opinion of eminent engineers that exploration so far carried out justifies hopes of remunerative developments. Discoveries of gold, copper, tungsten, molybdenite, and other valuable minerals have been made in several parts of the province. At the present time the three most promising fields are the district north of The Pas, the Rice Lake District to the east of Lake Winnipeg, and what is known as The Lac Du Bonnet district east of Winnipeg and close to the Winnipeg River. In the district north and west of The Pas, only a small part of which has been prospected, the existence of vast deposits of copper sulphide, copper and gold bearing ore have been demonstrated and development work which was retarded by the war is now being resumed. The Rice Lake district has only been partially prospected but hundreds of claims of great promise have been staked and a great many of these are in the course of development. In the Lac Du Bonnet district there has been but little prospecting and no development work to speak of, but the reports of Government geologists and engineers indicate the existence of very valuable deposits of copper.

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Manitoba has vast quantities of building materials which come naturally under the head of mineral resources. These include building stone of very fine quality of which the lime stone quarries at Tyndall, Stonewall, Stony Mountain and other places are best known. Granite is quarried on the east shore of Lake Winnipeg, also on the line of the Winnipeg Water District Railway to the east of Winnipeg. Good brick clay in large quantities is obtained in many parts of the province and bricks are manufactured at sixteen different points. A natural cement is manufactured at Babcock, north-east of Winnipeg, and cement materials are to be found in several other parts of the province. Limestone quarried on the shore of Lake Manitoba is used for the manufacture of Portland cement. Large deposits of gypsum exist in the townships north of Lake St. Martin and are being worked on a very large scale. Tungsten and molybdenite have been found in south-eastern Manitoba and deposits of iron found in the Lake Winnipeg district.

WATER-POWERS AND INDUSTRY

While, as has been said, the Province of Manitoba is essentially an agricultural province with many other natural resources and advantages that have been outlined, it has developed industrially to an appreciable extent. Undoubtedly the greatest factor in this development is the available amount of water-power. Much of this is within easy reach of the city of Winnipeg. Government surveys have shown that there is at least 500,000 h.p. available on the Winnipeg River at distances varying from 52 to 75 miles from that city, which is served by the municipal power plant at Point du Bois with a turbine installation of 47,000 h.p., and a privately-owned plant at Lac du Bonnet with a turbine installation of 37,600 h.p. The municipal plant is being extended and will have an installation of 57,000 h.p. and a subsidiary of the privately-owned company is also proceeding with development on a still larger scale. It is therefore certain that Winnipeg will continue to enjoy the unique advantage of an abundant supply of power for manufacturing and industrial purposes at a cost less than usual if not actually less than elsewhere on the continent.

In addition to the very valuable water-powers of the Winnipeg River, which are so easily available for use in Winnipeg and the older settled parts of the province, there are potential water-powers on a large scale in the new districts of Northern Manitoba. Government surveys on the Saskatchewan, Nelson, Churchill, Grass and Burntwood Rivers show that over 3,000,000 h.p. is available at ordinary minimum flow and that ordinary methods



WINNIPEG RAILWAY YARDS
The chief assembling point for the Cereal crop of the West.

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of storage will increase this to about 4,300,000 h.p., which would be dependable under all conditions. As has been noted much of this water-power is contiguous to very large areas of pulpwood. Some of the most promising mining districts also have ample water-power within easy reach and tentative plans for the development of some of the very large copper properties north of The Pas provide for the use of electrical energy entirely. Government experts who have been at work in the north country for several years past report that the production of fertilizer offers a wide field for exploration. It is to be noted that the last mentioned water-powers, although in a wild and practically uninhabited country, are all within easy reach of the Hudson Bay Railway which is soon to give Manitoba an ocean port. It is therefore plain that insofar as future power requirements are concerned Manitoba is in an exceedingly promising position.

THE WEST'S COMMERCIAL METROPOLIS

Winnipeg, the capital city of Manitoba, is the chief city of western Canada and stands third among all Canadian cities in population, bank clearings, industry and general importance. Because of its unique location it is often termed the "Chicago of Canada." In 1870, when the province entered Confederation, Winnipeg was nothing more than a Hudson's Bay trading post known as Fort Garry and had a population of 215. To-day it has a population of 270,000. The first railway reached Winnipeg from the south in 1878. To-day Winnipeg is one of Canada's greatest transportation centres with twenty-seven railway lines reaching out to every part of the country. All railways from the east to the west pass through Winnipeg. There are more miles of industrial trackage within the city than in any other city in Canada.

The area of the city is 15,921 acres or 24.8 square miles and the city contains nearly half the population of the province. It has 500 miles of streets and 236 miles of lanes, 113 miles of asphalt street, 6 miles of concrete, 33 miles of macadam and 26 miles of cedar blocks. It has 306 miles of graded streets, 136 miles of granolithic sidewalks, 394 miles of plank sidewalks, 255 miles of sewers, 282 miles of domestic water-mains, 120 miles of boulevards, and 112 miles of electric railway lines. The assessed value for purposes of taxation of all property in 1919 was \$236,023,520.

The City of Winnipeg operates its own hydro-electric light and power, waterworks, paving and quarry plants. The city has 31 parks and squares with an area of 674 acres. It has 49 public schools with 766 teachers and an average attendance of 31,505 pupils.

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Winnipeg is the home of the University of Manitoba, with an enrolment of over one thousand students, and of the Manitoba Agricultural College.



MANITOBA AGRICULTURAL COLLEGE

The output of industrial plants in Winnipeg in 1919 was approximately \$75,000,000 from 445 factories employing over 20,000 workmen. The city's customs revenue for 1919 was \$10,479,339, and postal revenue in the same year was \$2,443,207. The city has over 2,000 retail stores.

A sixteen mile aqueduct now supplies Winnipeg with pure soft water from Shoal Lake, 95 miles distant. The daily capacity of the aqueduct is 100,000,000 gallons. The supply is inexhaustible and of excellent quality.



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To see the Province of Saskatchewan properly from the right perspective and form the correct opinion of its great resources, one should approach it from the timbered portion and enter the province by way of the Hudson Bay railway from the north instead of from the east or west by one of the three transcontinental railway lines which run through the province. However, the traveller must forego this experience for a year or so, as there are still 90 miles uncompleted on the new short cut from the grain fields of Saskatchewan to the Liverpool market, a short cut which will bring the province a thousand miles nearer the sea and cut down by 1,200 miles the distance by present routes to Liverpool. The newcomer to Saskatchewan must rely on the reports of hunters, prospectors, surveyors and scientists for his information about the mineral wealth locked up in the rocky plateaus in the north-east of the province; the great lakes and wide streams swarming with fish; the deep forests teeming with game; the luxuriant growth of native grasses and vetches in the open spaces which are such a contrast to the "short grass" country of the south; the magnificent spruce forests, and the blending of forests and open prairie which forms the charming "park country" of a great portion of the northern Saskatchewan.

Approaching Saskatchewan from the east, west or south, one has already seen the prairies. Much of the mysterious attraction of the "Great Lone Land" has departed with the

—"Advancing multitude.

—The low of herds

Blends with the rustling of the heavy grain.

Over the dark-brown furrow."

But whether unscarred by the furrow, whether displaying the

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tender green of the growing crop, or the rich yellow of wheat fields ripening for the harvest, the first glimpse of the prairies is a revelation and a sight never to be forgotten.

Saskatchewan is in the very heart of the great fertile plains of Western Canada. This province has the most extensive and unbroken area of choice wheat land to be found anywhere in the world. In favorable years over two hundred million bushels of the very best wheat known in the great market centres as Manitoba No. 1 Hard and Manitoba Northern No. 1 and No. 2 have been harvested in this one province, and there is still less than a fourth of the arable land area under cultivation. The climatic conditions and unsurpassed fertility of soil combine to produce a wheat berry which is well-nigh perfect. Seven times in the past eight years Saskatchewan wheat growers have won the world's prize and sweepstakes for the best spring wheat. This one province now produces over half the wheat crop of Canada. If all the wheat land in the province were under cultivation, Saskatchewan alone could raise all the wheat which the British Isles annually import.

In other lines of agriculture, progress almost equally rapid has been made. The province leads the Dominion in the number of horses raised, now well over a million head, and has nearly a million and a half head of cattle; large flocks of sheep and herds of swine. This favoured province is remarkably free from the common diseases of live stock which exact such a heavy toll in older countries, and the breeding of pure bred, encouraged and assisted by the Government of the province, has made great progress.

HISTORICAL AND GEOGRAPHIC

The name "Saskatchewan," signifying "swift current," is a corruption of a Cree Indian expression. It was originally applied to any swift flowing stream, but the name soon became restricted by the whites to the one great river of the plains and was later given to one of the divisions of the old North-West Territories and finally adopted by the province.

The province extends over eleven degrees of latitude and measures 761 miles from north to south, and 393 miles in width at the international boundary line, the width gradually decreasing to 277 miles at the northerly boundary. The province thus occupies 251,700 square miles, equal to the combined area of France, Belgium and Holland. It is twice the size of the United Kingdom, considerably larger than Germany, and has an arable land area of over 94,000,000 acres.

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It was only as recently as 1870 that the lands comprising the three prairie provinces and the Northwest Territories were acquired from the Hudson's Bay Company by the Dominion of Canada. Prior to this date for a period of two hundred years, the history of Western Canada is the history of the fur trade. The history of Saskatchewan as a province began on September 1st, 1905. The first settlements in the present province were primarily offshoots from the Red River Colony, established by Thomas, fifth Earl of Selkirk, in 1812. The chief fur trading ports gradually became the nuclei of small villages, but there was hardly any attempt at farming beyond the raising of a few vegetables and keeping a few head of cattle, until the building of the Canadian Pacific Railway opened up Western Canada to the world and inaugurated a new era in the history of the Dominion.

THE REBELLION

Just at the time that the Canadian Pacific Railway line was nearing completion, there occurred the Northwest Rebellion. Thanks to the wise policy of the Hudson's Bay Company and the traditions handed down to those who had to deal with the Indians, Western Canada had never seen an Indian war, although for many years the bulk of the population in the Northwest Territories was composed of Indians and halfbreeds. As the tide of immigration set toward the West, it was inevitable that the Indians could no longer possess the whole country, and in seven treaties entered into between 1871 and 1877 the Indians surrendered all right to the great fertile belt extending from the height of land west of Lake Superior to the Rocky Mountains on consideration of annuities for chiefs, head men and braves, a sufficient number of Indian reserves for the various bands, and proper provision for supplying the Indians with agricultural implements and other necessary tools.

The Indians realized the value of the heritage they were surrendering and spoke frequently and with much eloquence of their primary rights as the ancient occupants of the soil, although recognizing that they must acquiesce in the new order of things. "The sound of the rustling of the gold is under my feet where I stand," said one famous chief with prophetic insight. "We have a rich country; it is the Great Spirit who gave us this."

In connection with the extinguishment of the Indian title to the soil, there were inexcusable delays in recognizing the rights of halfbreeds to land. The unexplained policy of the authorities entrusted with the surveying of the land in Western Canada caused much uneasiness. Demands upon the government were

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made by halfbreeds, demands which were afterwards recognized as fair and just but at the time were received with absolute silence. Through a series of unfortunate incidents and misunderstandings, a small body of halfbreeds took up arms, formed a provisional government, and on March 27th the first blood was shed. The brief but spectacular rebellion was quickly suppressed, the most important outcome of the rebellion and the most unexpected being the wide publicity given to the immense extent and marvellous possibilities of the great plains of Western Canada, which resulted in a tide of immigration toward the prairies that is still flowing, and received a great impetus at the close of the Great War.

The canoe was the chief medium of travel in the early days of Canada. Saskatchewan with her far-flung river system, which required only a few short and easy portages, and with furs as practically the only export, was not troubled greatly by the transportation problem until agriculture began to be developed. The ease of prairie travel encouraged settlement many miles from the railway, but as soon as these settlers had wheat to sell and everything else to buy, the clamor for more railroads rose from all parts of the west.

PHYSICAL AND CLIMATIC FEATURES

While there is not the same diversity of landscape in the central and southern portion of Saskatchewan as in the wooded northern and north-eastern part, it must not be imagined that the prairies are "One vast plain, and one boundless reach of sky." There are large areas of wooded country, with many beautiful lakes and streams in all parts of the province except the extreme western portion. Game is plentiful in all parts and big game shooting in the northern woods is each year becoming more and more popular.

The summers in Saskatchewan are characterized by high day temperatures and an abundance of sunshine, followed by cool nights. The northern latitude gives a long period of daylight, and while the temperature sometimes rises to quite a high figure, there is so little humidity that the heat is not oppressive.

The winter climate of Saskatchewan was at one time regarded as a serious handicap in the development of the province, but this invigorating and healthful season is rapidly becoming recognized as an asset instead of a disadvantage. The cold is at times severe and the thermometer drops to a figure that would mean suffering and distress in a more humid climate, but the air is so clear and crisp, the sunshine spreads such a brilliant glow over sky and land, and there is something so bracing and stimulating in the clear, dry cold, that even very frosty days are delightful. There are

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disagreeable storms as in all countries, but the snowfall is light, and most winters automobiles are laid up for only a few weeks in the country and roads are rarely blocked by storms as they so often are in regions of heavier snowfall.

Winter does not linger in the lap of spring as far as Saskatchewan is concerned. The light mantle of snow disappears very quickly after the first few days of warm sun and soft breezes, and long before the frost is out of the ground the surface of the land is dry, and seeding operations well under way, seeding generally starting the first or second week in April. Harvesting usually begins early in August and while early fall frosts may generally be looked for in September, the fall months are as a rule the most enjoyable of the whole year.

Saskatchewan's "lusty winters, frosty but kindly," and the sharp pace set by the ambitious, energetic, purposeful men and women who are building up such a fine type of citizenship and such a progressive province, soon sift out the ease-loving and the shiftless. There is no room and no welcome for them in this part of the world. But there is a hearty Western welcome and boundless opportunity for the men and women of the right stamp, who will come to Saskatchewan ready to take their place in the ranks of the "Empire Builders" in this "Empire Province," with its brief but inspiring history, pregnant with promise of a greater future. Saskatchewan is rich in her wealth of raw material for industrial development, in her millions of acres of fertile land, in her wide forests, and above all in the character of her citizens, but her great lack is population. The progress made in a few years shows what can be accomplished, but it will take many times the present population to properly develop its enormous potential wealth.

RAPID DEVELOPMENT

In 1905 the total population of the province was estimated at 200,000. The total area under crop that year was 1,638,281 acres. Ten years later the population had increased to nearly 700,000 and there were 10,543,796 acres under crop. The present population of the province is estimated as 833,000, and close to 20,000,000 acres have been brought under cultivation.

Wheat farming led all other lines in the early development of agriculture in Saskatchewan and is still the major industry of the province, but a system of balanced farming which is strongly advocated by the provincial Department of Agriculture and the splendid body of practical scientists on the staff of the Saskatchewan Agricultural College, University of Saskatchewan, is each year gaining ground and is establishing agriculture on a permanently



SASKATCHEWAN PARLIAMENT BUILDINGS
Wascana Park in foreground.



ON A LARGE SASKATCHEWAN WHEAT FARM
Modern method of preparing land for seed.

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profitable basis. A few years ago butter was imported into the province by the carload; now millions of pounds of government-inspected creamery butter are shipped to eastern and western markets. In 1919 over a hundred carloads of butter were exported.

For the past three years the total value of all farm products in the province has averaged five hundred million dollars. Grain growing will always hold a prominent place in agriculture in any country where an unbroken furrow can be plowed for miles in any direction without encountering a stone or a stump; but the great progress made in dairying, in the breeding of pure bred stock, shows that the present tendency has set strongly toward diversified farming.

RESOURCES OF THE FOREST

Few people in or out of the province realise the extent of its forest wealth. The forest area is between 98,000,000 and 100,000,000 acres. There is a wooded area of 73,000,000 acres and an area under spruce forests of 750,000 acres. It is estimated that there is at present available spruce saw timber, three billion board feet; poplar saw timber, four billion board feet; jack pine saw timber, eight hundred million board feet. There could be cut for pulpwood 55,000,000 cords, and for firewood nearly 100,000,000 cords of jack pine, birch, tamarack and willow.

MINERALS

Very little prospecting has been done as yet in the area of Huronia rocks in the north. Gold, silver and copper have been found. Difficulties of transportation and of development have prevented systematic exploration or prospecting. Close to the Saskatchewan boundary in Manitoba a great deposit of copper ore has been located and it is believed that the field extends into this province. There are vast fields of lignite coal of a low grade on account of its moisture content. It slacks almost to a powder when exposed to the air in the summer months. For the purpose of developing these fields and providing the people of the prairies with cheaper and better fuel, the Lignite Utilization Board of Canada was formed a few years ago, Saskatchewan, Manitoba and the Dominion Government appropriating \$400,000 for the use of this Board, the federal government paying one-half and the provincial governments one-quarter of this sum. A long series of exhaustive experiments in carbonizing and briquetting lignite coal have been carried on by experts, and these experiments have demonstrated that two tons of low-grade lignite coal can be transformed into one ton of a high-grade product practically equal in

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value to anthracite. This Board is now constructing a briquetting plant of commercial size near Bienfait in the south-eastern coal fields of the province, which will be in operation in 1920 with a capacity of 20,000 tons yearly. It is believed that this new process will revolutionize the fuel and power situation.

Raw refractories known as fireclays, and other deposits from which can be manufactured practically the whole range of structural clay products are prevalent at many points; a fact of vital importance to a region lacking in a supply of building stone. Several valuable discoveries have been made of deposits of non-metallic products, such as sodium sulphate, gypsum, ochres, salt, etc.

GROWTH OF URBAN CENTRES

While the agricultural development of this great "Empire province" has been exceptional, the cities and towns have not lagged behind. At one period the cities grew too rapidly, faster than conditions in the country warranted, and most of them experienced a temporary set-back just about the time the war broke out. By careful management and the public spirit of their citizens, urban centres soon recovered and are again busy and thriving on a sounder basis than before, and with every prospect of continued progress and prosperity.

There are seven cities in the province, Regina, Saskatoon and Moose Jaw being the three largest. Regina is the capital of the province; Saskatoon, the seat of the provincial university, and Moose Jaw is the great railroad city. All three have thriving industries, modern business blocks, splendid school buildings, collegiate institutes, wide streets, fine parks and recreation grounds. Prince Albert, the oldest city, is beautifully situated on the south bank of the North Saskatchewan river; North Battleford, on another fine location on the north bank of the same river about a hundred and ten miles to the south-west; Swift Current is an important railway point, and Weyburn is in the south-eastern corner of the province close to the great coal fields destined to be such an important factor in the industrial development of the province.

INDUSTRIAL DEVELOPMENT

In 1911 there were 78 factories in the province, nearly all confined to wood working, printing and laundry establishments. To-day there are over 200 factories representing many forms of industrial activity, including large flour and cereal product mills which are each year increasing their output and shipping to all

parts of the world; oil refineries, either already in operation or in process of erection; large foundries, many small factories, clay product plants, etc.

While the cities of the province offer many opportunities in trade and industry, the great need of the province is for men and women who will assist in developing the vast agricultural resources and bring under cultivation idle and vacant land. As the welfare of the province is dependent upon the prosperity of its rural population, marked consideration has always been given by governments to its interests, hence there are good roads, rural telephone lines, good schools, and in all but a few localities, adequate railway service. There are 215,000 miles of road allowance in Saskatchewan and over 35,000 miles of main roads. Great progress has been made during the past three years in establishing a system of main highways throughout the province, the provincial Department of Highways and the rural municipalities co-operating to this end.

In a land of "magnificent distances" like Saskatchewan, the telephone has proved a powerful aid in building up a friendly neighbourly spirit, in connecting city, town and country and breaking down the isolation of farm life. The system adopted has proved remarkably well adapted to the requirements of the people, resulting in rapid extension of telephone service operated by a special department of the provincial government, which owns and controls the long distance and the town and city systems, and permits the connection thereto of various local rural systems organized, constructed and operated under government supervision. Seven thousand pole miles of telephone were completed from May to December, 1919, and applications for new lines aggregating 12,986 miles were received the same year from 13,708 subscribers. The new automatic system is in use in the cities and towns.

With the fine roads common in the greater part of the province, and the general prosperity of the people, there has been a phenomenal demand for automobiles, and to-day over sixty thousand are in use, one for every fourteen persons in the province. So accustomed are the farmers to them for business as well as for pleasure, that public interest has been stimulated in the "Good Roads" policy of the Highways Department. A system of provincial and interprovincial highways is being laid out as part of the "Main Highways" policy of the government.

FOSTERING EDUCATION

The first minister of the province is the active head of the Department of Education, and is assisted by a superintendent, a

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deputy minister, an educational council, and a large staff of prominent educationists. The system is headed by the University of Saskatchewan, a well equipped modern institution. There are two Provincial Normal Schools, twenty-four Collegiate Institutes and High Schools, and 4,293 school districts, which represents an increase of 3,399 in fifteen years.

Since 1905 there has been expended for educational purposes by the Department of Education, considerably over \$13,000,000. For the fiscal year 1920-21, the sum of \$1,966,576 has been placed in the estimates.



ONE OF THE BUILDINGS, UNIVERSITY OF SASKATCHEWAN

The keen interest in education taken by the people is shown by the records of the Department. \$10,000,000 was paid out in 1918 for elementary education, of which \$1,162,490 was received in grants from the government.

CO-OPERATIVE EFFORTS

Saskatchewan is the birthplace of several powerful co-operative enterprises. The Co-operative Elevator Company, Ltd., was organized by the farmers after the marketing of grain had been most thoroughly studied, the government loaning 85 per cent. of the capital required, on long terms and at low interest. Its success became the inspiration for a widespread adoption of co-operative principles by associations of farmers in all parts of Canada. The company now owns hundreds of elevators located

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in all parts of the province; terminal and hospital elevators at Fort William, and is now planning to engage in the flour milling business.

The Saskatchewan Co-operative Creameries Limited owns its own cold storage warehouses as well as a large number of modern creameries. Co-operative Live Stock Yards, assisted by the government in the same way as in the case of elevators and creameries, have been opened in Prince Albert for the northern part of the province and Moose Jaw for the southern, and these enterprises are of the greatest value to the cattle industry.

The Saskatchewan Farm Loans Board, which started operations in the summer of 1917, has already loaned a limited amount of money to farmers, thus supplementing the volume of credit made possible by the larger financial institutions. Rates of interest are governed by conditions of the money markets, and the terms on which loans can be had are variable and can be adapted to meet the particular needs of borrowers.

One of the most useful lines of work mapped out by the Department of Agriculture, has been the supplying of foundation breeding stock at first cost and on easy credit terms. Another useful measure has been the marketing of wool for farmers by the Co-operative Organization Branch of this Department.

SERVICES IN THE WAR

Upwards of 38,000 men from Saskatchewan carried the British colors to the front, and every call for men, money or food was cheerfully and promptly met by its citizens. Saskatchewan presented the Imperial War Office with gift horses valued at \$374,424. She subscribed over \$2,200,000 for the Canadian Red Cross, over \$2,000,000 for other patriotic purposes, \$2,794,053 for the Canadian Patriotic Fund, and large sums for the Y.M.C.A. Red Triangle Fund, Knights of Columbus Fund, Belgian Relief, etc. There was a fine response to the three Victory Loans, the province subscribing \$21,410,000 to the first loan, \$26,071,450 to the second, and \$21,712,650 to the third, a total of \$69,194,100. In response to the demand for greater food production, the farmers of the province added millions of acres to the area under crop during the war, although each year the shortage of farm help meant harder work and longer hours for the men and women who served their country so faithfully behind the plow and the binder.



PART OF ALBERTA'S 800,000 HEAD OF HORSES IN 1919



A FIRST CROP ON IRRIGATED LAND IN SOUTHERN ALBERTA

Where regular crops on millions of acres are assured by diverting the waters of mountain streams for irrigation purposes.



Alberta



ALBERTA is known as the "Foothill Province of Canada." It occupies the great western plateau of the prairie region between the Great Lakes and the Rocky Mountains, and extends from the international boundary to the 60th parallel north latitude. It comprises 163,382,000 acres, of which 86,656,000 acres have been surveyed. Of this vast area of surveyed land 20,000,000 acres are under homestead; 13,000,000 acres have been granted to railways; 2,000,000 acres to the Hudson's Bay Company, and 1,215,000 acres granted as half-breed scrip. A great portion of the grants to railways and to the Hudson's Bay Company, as well as the half-breed scrip, have been sold and settled upon. The forest reserves and parks comprise 16,000,000 acres, while 1,368,000 acres are still comprised in Indian Reservations. There still remains of the surveyed portion of the province, 17,120,000 acres available and fit for settlement.

Alberta is a part of the original Hudson Bay territory granted by Charles II to Prince Rupert and his Gentlemen Adventurers in 1670. In 1869 this vast region, ruled over by the Hudson's Bay Company for 200 years, was purchased by the Canadian Government from that company, and an organized government was established for the first time. Various temporary measures were enacted by the Parliament of Canada for the government of the North West Territory, out of which the Province of Manitoba was created in 1870. In 1875 an act passed by the Parliament of Canada for the government of the North West Territory established a separate legislative body under a Lieutenant-Governor. This body was comprised of elected members, of members appointed by the Lieutenant

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Governor-in-Council, and also of certain high officials within the Territory, and was called the North West Council.

In 1882 the North West Territory was divided into four districts, viz., Alberta, Athabasca, Assiniboia and Saskatchewan. In 1887, the North West Council was abolished and provision was made for the government of the Territory for local purposes to be placed in the hands of a regularly elected Assembly. In the same year representation was given to the Territory in the Parliament of Canada, four electoral districts being created, viz., East and West Assiniboia, Saskatchewan and Alberta.

The next important date in the development of the North West Territory is 1905. In that year this vast region was divided into two provinces, Alberta and Saskatchewan, and each province was given the same form of government as enjoyed by the older provinces of Canada. The government was formally inaugurated September 1st, 1905.

AREA AND POPULATION

The population of the province has shown a remarkable growth since its organization in 1905. The census of the following year showed a population of 185,412. In 1911 it was 374,663. In 1916 it had grown to 496,525, and at the present time the population is estimated at 625,000, 85% of which is of English speaking origin.

The country is well watered by numerous lakes and rivers. It has rarely been found that water cannot be obtained in any part of the province by sinking wells of moderate depth. A great variety of natural grasses cover the prairie everywhere, affording abundant natural pasturage and hay. The feeding value of these grasses has been known since the earliest traders entered the country. Alexander Henry, the noted explorer, was at Fort des Prairies in 1776, and found Mr. Finlay "with 50 tons of buffalo so fat that it was difficult to find any lean." In the southern part of the province is open rolling prairie cut by numerous river valleys that afford excellent shelter and feeding grounds for live stock. The northern part is covered with trees interspersed by spaces of open prairie, while the river valleys in this region contain many varieties of merchantable timber suitable for all the purposes of building and settlement. The soil everywhere is fertile and capable of producing the finest crops of cereals and hay. For many years little attention was paid to the growing of hay for fodder purposes. Homesteaders and ranchers were able to find sufficient quantities of wild hay for all the purposes of feeding their numerous herds.

Alberta

The eastern slope of the Rocky Mountains, which contains more particularly the foothill area, is a vast forest and game preserve. It abounds in numerous varieties of fish and game. Hunting is excellent and attracts many parties from different parts of the world.

CLIMATE

The climate of Alberta presents many unique features that distinguish it from the rest of the western plains. In his annual report for 1909, the Director of the Meteorological Service of Canada says as follows:

"It is doubtful whether there is any other region of the globe where the distribution of atmospheric pressure has so pronounced an effect on weather conditions as in southern Alberta, and this because a barometric gradient for northerly winds in winter means the transference of air from continental high altitudes across the country, while a westerly gradient means the flow of mild ocean air still further raised in temperature by the chinook effect."

This effect was observed by Sir Alexander Mackenzie as early as 1792 when he spent the winter in the Peace River district before his dash to the Pacific Ocean. During that winter the weather was so mild that Mackenzie was of the opinion that the ocean was very close. The best evidence of the climate of Alberta is that the same flora extends from eight to twelve degrees of latitude as far north as 60 degrees, and as that flora requires a high summer temperature for its existence, the thermometer shows a correspondingly even distribution of heat throughout the whole district. The observations of early travellers have been fully established by the recorded observations of the Meteorological stations at Macleod, Calgary, Edmonton, Peace River and Fort Chipewyan.

The annual rainfall is about eighteen inches, and while this may not seem large, it should be observed that the precipitation period is largely confined from the month of May to August, during the period of the growing of the crops. For this reason, therefore, most of the rain that falls is conserved for crop production. Consideration of the latitude and statistics of precipitation alone, would not convey a correct idea of the suitability of this territory for agriculture. It must be remembered that the summer isotherm does not run east or west in the North West of Canada. The isotherm that represents the mean summer temperature begins at Lake of the Woods, 1,000 miles eastward from the Rocky Mountains, and runs in a north-westerly direction passing north of Lake Athabasca, thus

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taking in the whole of the Province of Alberta and a portion of the Mackenzie Valley. It will therefore be seen that the whole of the province is within the temperate zone. Another observation of importance with respect to rainfall, is that the low temperature of the winter season prevents evaporation and thus conserves the moisture for the following summer's crop.

The following comparative table of temperatures will show the resemblance between the climate of Alberta and parts of Europe, where the climate is regarded by inhabitants as most favorable for all purposes of agriculture:—

Place	Latitude	Mean of Summer months
Winnipeg.....	49 degrees	62 degrees F.
Macleod.....	49	60
Norway House.....	54	60
Fort Simpson.....	62	62

In the same parallels of latitude in Europe, the temperatures are recorded as follows:—

Place	Latitude	Mean of Summer months
Penzance, S. W. England.....	50 degrees	60 degrees F.
Cracow, Poland.....	50	64
Koenigsburg, Prussia.....	54	60
Petrograd, Russia.....	60	60

AGRICULTURE

The suitability of Alberta for the production of grain is evidenced by the fact that, at the Centennial Exhibition in Philadelphia in 1876 and at the Columbian Exhibition at Chicago in 1893, the highest awards for wheat grown in any part of the world were given to wheat grown more than 250 miles north of Edmonton on Lake Athabasca and in the Peace River Valley. This high standard has been maintained in most of the competitions since held for wheat on this Continent. The same may be said of oats. Oats grown five miles east of Edmonton, won the highest award at the Paris Exhibition in 1900, and it is not an uncommon thing for oats to weigh 48 lbs. to the cubic bushel and to yield over 100 bushels per acre.

Pioneer farming has passed, and improved methods in field tillage, live stock breeding and dairying are engaging the attention of the farmers. The production of wheat for export will remain a permanent and profitable industry and although the future of the province is destined to witness a wonderful development in the industries dependent upon extensive mineral resources, agriculture will remain the basic industry of the province.

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Owing to the long hours of sunshine and the cool nights, coupled with the rich stores of nitrogen in the soil, a clear flinty sample of wheat containing a high percentage of gluten is easily produced. All other feeding grains, such as barley and rye, are grown in abundance. The problem of hay and fodder supply presents, except in occasional years, no difficulty to the Alberta prairie farmers. The wild prairie grasses afford sufficient resources for pasturage or hay, but as settlement extends the native grasses have disappeared in the thickly populated areas. Little difficulty, however, has been experienced in growing splendid crops of timothy, brome grass, western rye grass, clover and alfalfa. Alfalfa is becoming an exceedingly important crop in Southern Alberta, especially on irrigated lands.

The area of arable land in the province is placed at 100,000,000 acres, about 8% of which is under cultivation at the present time. The statistics of production show a remarkable increase since the beginning of the province. In 1906 the total area under crop was only 591,614 acres. In 1914, the year the war broke out, the area was 2,586,169 acres. The enormous demand for grains of all kinds and especially for wheat during the period of the war, resulted in a vast increase in the area under cultivation, amounting in 1918 to over 7,000,000 acres. A concrete idea of the growth and production of the principal grains of Alberta may be obtained from an Appendix* showing the field production of Western provinces.

All grain is sold according to grades established by law and determined by Government Inspectors. The administration of the regulating act is in the hands of an independent Board whose duties concern the licensing and bonding of elevators and the issuing of rules and regulations, the inspection of elevators, and investigating the complaints of the producers.

CENSUS OF LIVE STOCK

	1915	1916	1917	1918	1919
Milch Cows..	183,974	277,324	325,861	328,702	326,596
Other cattle..	660,000	882,766	1,209,433	1,362,880	1,247,448
Total cattle..	843,974	1,160,090	1,535,294	1,691,582	1,584,044
Horses.....	544,772	634,188	718,317	791,246	880,380
Sheep.....	238,579	292,620	276,966	322,179	364,498
Swine.....	229,696	603,554	730,237	601,534	445,858

The settlement of the Indians upon Reservations, and the disappearance of the buffalo in the late seventies, made it necessary for the Government of Canada to take active steps to establish

*See Appendix XVIII.



CALGARY PUBLIC LIBRARY



AN ALBERTA CREAMERY

The total value of dairy products in Alberta in 1919 was \$31,625,000.
Edmonton has the largest butter factory in the Dominion.

the cattle industry in Alberta. In 1879 one thousand head of cattle were imported from Montana to create a meat supply for the Indians. A number of ranchers quickly followed and provision was made for grazing leases at low rates. By 1884 the ranching industry was fully established in Southern Alberta, forty-one companies holding under lease 2,782,000 acres. In 1886 it was estimated there were 104,000 cattle on leased lands in Alberta. Though the great ranches of early days have passed, the area still under grazing leases is over 2½ million acres.

Export to Great Britain of Alberta cattle began in 1887, in which year there were about 5,000 shipped from the Calgary district alone. The development of the mining industry in Southern British Columbia in the late nineties opened up a lucrative trade for butcher cattle not fit for eastern export. Since 1900 there has been no effort to replenish the large herds of earlier days, due to the disinclination of the Federal Government to grant long term leases, preferring to leave the land open for the homesteader. The development of the industry, however, since the organization of the province, has grown by leaps and bounds.

A marked feature in connection with the increase has been the importation of high class breeding stock. Some of the finest herds of Shorthorns and Herefords in the Dominion are found in Alberta. The result of such progressive methods in building up the herds of the province has been amply justified. A Shorthorn bull calf bred by Alberta's Minister of Agriculture won the honors of his class at the Chicago International Fat Stock Show last December. Referring in a recent issue to this bull, the *Breeders' Gazette* said: "A more perfect specimen of a Shorthorn bull calf than 'Matchless Dale,' shown by Alberta's Minister of Agriculture, was never seen in this show yard. He combined ruggedness with quality, thickness with style, character with width and defied the most carping critic to pick a flaw in his outline."

Prior to the coming of the North West Mounted Police in 1874 very few well bred horses were found in the West. The government established farms in connection with a number of Police Forts to breed a supply of suitable horses for the force. One of the earliest of these was situated west of Fort Macleod near Pincher Creek. In 1886 the number of horses in Southern Alberta was estimated at 10,000, mostly in the Calgary and Medicine Hat districts. The police census of 1895 shows there were 43,000 horses on the ranges. The inrush of settlers which began in 1895, gave a great impetus to the horse industry of Alberta. The interests of the horsemen of the province are actively kept to the front by the Alberta Horse Breeders' Association and strongly supported by the Provincial Government. Breeders are

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introducing pure bred sires,—Clydesdales, Percherons, Shires, Suffolks, Thoroughbreds, Hackneys and Standard Breds, and a wonderful improvement is being made. During the present year special attention has been given by the Association referred to in co-operation with the Provincial Government to the improvement of the breeding of horses. The Department of Agriculture has purchased this year, for the use of Clydesdale breeders in Alberta, one of the most famous Clydesdale stallions in Scotland, viz., "Craigie Masterpiece." Money has been appropriated by the Legislature to purchase similar stallions of the Percheron and other classes. The number of horses has increased from 226,000 in 1906 to 883,380 in 1919. The climate, grasses and other conditions are eminently suitable for raising superior types of horses.

The sheep industry of Alberta dates from the early eighties. The first flocks were established on the open range country in Southern Alberta. Until recent years the sheep industry has not developed with the same rapidity as the cattle industry, owing to the difficulty of grazing sheep and cattle in the same range country. There are, however, a few large flocks left in the South Eastern part of the province, but the industry is now developing as a farm proposition, and is making satisfactory progress. The number of sheep is now 365,000.

The first wool shipment of 70,000 lbs. was made in 1884. In 1914 the production of wool was 1,300,000 lbs. and in 1919 it had risen to 2,114,319 lbs. valued at \$1,268,590.

The swine industry in the earlier years of the province's history developed more slowly than either that relating to horses or cattle, but within recent years the production of hogs has grown enormously. Several large pork packing establishments are in operation in the province and a steady demand continues to meet production. The success of the industry is best shown by comparing the number of swine in 1906, 114,000, with the number at present, 601,000.

DAIRY PRODUCTION

The first settlers devoted their attention mainly to the production of grain and beef cattle. This applies particularly to Southern Alberta. In central and Northern Alberta dairying has had a gradual and steady development. The rapid rise of the cities of Edmonton, Calgary, Lethbridge and Medicine Hat has created a demand for milk, cream and butter that has altered the status of this industry in all parts of the province, and now where wheat was once king the dairy cow is queen. Local breeders are importing large numbers of pure bred dairy stock and the

Alberta

number of dairy cows has increased from 100,000 in 1906 to 328,000 in 1919. The government exercises careful supervision over the production and marketing of dairy products. Extensive courses in dairying are given in the Schools of Agriculture and in the Provincial University. This work is supplemented by short courses in different parts of the province during the winter season, and by careful grading of the output under the supervision of the Provincial Dairy Commissioner. The result of this forward policy has been most gratifying. The Province of Alberta produces a high grade of butter, testimony of which is found in the fact that at the Inter-Provincial Butter Graders' Conference held in Winnipeg in February, 1920, Alberta won first, second, and third place, Quebec fourth and fifth, Manitoba sixth, and Quebec seventh and eighth. The successful competitor was a Wetaskiwin farmer with a score of 98.

DAIRY PRODUCTION 1914-18

Year	Lbs. Creamery	Value of Creamery	Value of all Butter	Lbs. Cheese	Value of Cheese	Total Dairy Products
1914	5,444,806	.....	\$10,500,000	70,581	\$12,000	\$10,512,000
1915	7,544,148	\$2,021,448	15,895,586	381,632	68,441	15,964,027
1916	8,521,784	2,619,248	18,466,311	745,122	154,453	18,620,764
1917	8,944,171	3,414,541	24,794,597	1,274,905	280,185	25,074,782
1918	9,053,237	4,025,851	27,500,000	552,834	130,911	27,630,000
1919	10,500,000	.....	.....	500,000	.....	31,625,000

MINING AND MINERALS

Next to agriculture, mining is the most important industry, particularly that of coal and natural gas. Gold has been found in the gravels of the Saskatchewan river, and galena, gypsum and salt in other localities. The coal deposits of the province have been carefully examined by the Geological Survey of Canada. The beds are found in three horizons distributed from the summit of the Rocky Mountains eastward over the entire province, and from the international boundary line to the Peace River. The coal area is placed at 16,000 square miles, containing 90,000,000,000 tons, 80,000,000,000 tons being lignite. The industry is located in the Crowsnest Pass, Lethbridge, Drumheller, Edmonton districts, Jasper Park and the Brazeau Field. The annual pay roll amounts to about \$14,000,000.00 and the annual production is in the neighborhood of over 5,000,000 tons, including 2,611,000 tons of domestic, 2,326,000 tons bituminous, and 86,000 tons of anthracite.

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The occurrence of bitumen and natural gas and oil has been known in Alberta since the Expedition of Sir John Richardson in 1823. The largest natural gas field is in the vicinity of Medicine Hat. It has been found in considerable quantity in the Viking District 73 miles east of Edmonton, and along the Athabasca river where a well has been burning continuously for many years. The bituminous sands of the Lower Athabasca, estimated at five billion tons, will, when subjected to treatment, the formula of which is said to have been successfully tested, yield a varied assortment of merchantable products.

FORESTS

The forests of Alberta are under the control of the Federal Government. Certain areas have been set aside as forest reserves for the protection and propagation of the native trees and water supply. Most of the reserves are connected with the Dominion Parks, such as the Rocky Mountain, Jasper and Waterton Lakes. Outside of these there are the following forest reserves, viz., the Crowsnest, Bow River, Clearwater, Brazeau, Cooking Lake, Athabasca and Lesser Slave, comprising an area of 19,390 square miles. The estimated area covered by saw timber is 5,416,000 acres, carrying 21 billion board feet of standing timber. The principal species are pine, white spruce, Englemann spruce, Douglas fir, balsam and poplar, which grow on the foothills and the mountain slopes up the timber line, also lodge pole pine, jack pine, and aspen,—very useful for mining timber.

COMMERCE, EDUCATION AND FINANCE

The statistics of manufactures for 1917 (the last available census) give the number of industrial establishments as 1,317, representing invested capital of \$63,215,444. The pay roll of these industries was for that year \$2,468,993, a sum paid to 2,089 employees.

The length of railway lines is about 4,650 miles.

A Provincial Government system of telephones covers the province, serving 719 cities, towns and villages and having 24,000 exchange telephones and 12,000 rural telephones, and 20,000 miles of long distance service.

The province has a splendid system of education, comprising primary, secondary and higher institutes of learning. All schools are supported by taxes levied by the local board supplemented by government grants. Grants are distributed to encourage the highest grade of teachers, regular attendance of pupils, and general

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efficiency based on the report of the government inspector. Three normal schools are in operation for the training of teachers. The number of children in attendance at the public and high schools in the province is 125,000. The University of Alberta was organized in 1907, and has at the present time 800 students.

The revenue of the province is derived from the Dominion subsidy, school lands and provincial taxes. The annual expenditure is about \$8,000,000 and the bonded debt of the province amounts to \$30,746,000. The assets of the province represent an investment of \$135,000,000, while the annual production expressed in terms of money reaches a total of \$239,000,000.



JASPAR PARK



WINTER IN VICTORIA, B.C.—January, 1920.



AN ORCHARD AREA IN KETTLE VALLEY

British Columbia ships fruit to the prairie provinces in increasing quantities every year.



British Columbia



BRITISH COLUMBIA, Canada's Maritime Province on the Pacific Ocean, is, roughly, a great rectangle some 700 miles north from the United States border, where Washington, Idaho, and part of Montana adjoin, to the 60th parallel, about 400 miles east and between the Pacific Ocean and the axis of the Rocky Mountains. The sinuous coast-line, indented with deep inlets, and fringed with some thousands of islands large and small, exceeds 9,000 miles in length, with numerous good harbours and a great maze of sheltered channels—an extensive deep-water canal system—giving access to the whole littoral. Vancouver Island, covering 15,000 square miles, and the Queen Charlotte Islands, are the largest of the off-shore archipelago. British Columbia has an area of 372,609 square miles, being about equal in area with the United Kingdom and France, with Belgium, Holland and Denmark added, these countries having a combined population of over 100,000,000 people. British Columbia has 700,000.

Speaking generally, British Columbia is a highly mineralized, mountainous country, with intervening valleys and plateaux of arable and pasture lands, great forests and extensive waterways. Its timber is unexcelled in quality, quantity and variety. The forests hold, in addition to vast pulp wood, 366,000,000,000 board feet of saw-timber, ample to build a wide plank road around the world. The mineralized belts and mountains are a great treasure vault, the full extent of which cannot now be adequately estimated. Mineral production to date exceeds \$670,000,000. The seas and rivers teem with fish—British Columbia salmon being a household word in far cities. Over a third of the fisheries product of Canada comes from British Columbia. The fertile valleys offer scope for considerable

British Columbia

agricultural development along varied lines, the warm southern valleys being famed the world over for their fruits. Though but a small percentage of the available area is cultivated, agricultural production last year exceeded \$62,000,000. Indeed few countries can show a greater per-capita annual production from mines, forests, fisheries and agriculture combined, than British Columbia.

LAKES AND WATERWAYS

British Columbia is a well watered province. The principal of its river systems are the Fraser, Columbia, Skeena, Nass, Stikine and Peace. The lakes, a number exceeding 100 square miles in extent,—the largest 260 square miles—cover an aggregate of about 4,900 square miles. The water power resources are great. The Commission of Conservation estimate of the total is 2,500,000 horse-power per 24 hours, of which 250,000 is being utilized by plants now in operation. The aggregate does not include about 400,000 horse-power possibilities on streams like the Fraser, Thompson, Skeena and Nass rivers, where the proximity of railways, a possible interference with the salmon industry, would likely preclude development. Hydro-electric development began in 1897, and since, many large power plants, mine, pulp mill, and numerous other industrial developments have been established, and extensive irrigation systems installed. Water is also used in various ways in mining works, a number of the larger plants ranging in capacity from 23,000 to 84,500 h.p. Several other power developments are projected, one of about 90,000 horse-power.

CLIMATE

The warm Kuri Siwo, or Japan current, has its beneficial influence on the climate in a manner corresponding to that of the Gulf Stream upon Western Europe, and the warm, moist westerly winds blowing across it are affected by the mountain systems which roughly parallel each other south-east to north-west, alternating with the intermontane valleys and plateau areas. On the coast littoral where a balmy climate prevails, the moisture-laden winds striking the Coast Range give precipitation ranging in localities from 40 to 120 inches; mean average annual temperature varies from 44° to 49°, summer mean 55° to 61°, winter 30° to 38°, the lower toward the north. Though the climatic belts extending generally northerly and southerly are well defined, there are within them local variations in precipitation and temperature, mainly owing to latitudinal and altitudinal differences.

British Columbia

Three trans-Canada systems cross the province, in addition to many hundreds of miles of branch and connective railway services. The coast littoral is well served by steamer transportation, and there are great inland waterways, on many of which sternwheel steamers now ply, and many hundreds of miles of connected navigable waters are available for similar transportation. British Columbia has many extensive highways suitable for motor travel, a considerable road mileage—approximately 15,000 miles in all—and about 8,500 miles of improved trails. With the divergent topography encountered, road-building is much more expensive in British Columbia than in other parts of Canada. The expenditure by the province last year on roads, trails, bridges, ferries and subsidies to steamboat services, totalled \$1,483,900—a total of over \$28,000,000 being expended on this account in the past ten years. Roads in wooded and mountainous territory, adjacent to urban settlements and cities, are a source of attraction to tourists who visit British Columbia in numbers increasing yearly.

CHIEF CITIES

Vancouver, Victoria, Prince Rupert, New Westminster and Nanaimo are the most important ports, the majority being well equipped with modern dockage facilities, in well-sheltered, deep-water, easily accessible harbours; also shipbuilding, repairing and salvage plants, dry docks, etc.—in fact Vancouver and Victoria are comparable with the great shipping ports, both in point of tonnage and equipment, and Prince Rupert, the latest established terminal, is forging rapidly forward as a port. It is already a noted deep-water fishing centre, and has the largest cold storage plant in the world. Last year the tonnage inward at Victoria, foreign and coastwise, totalled 3,802,793 tons, including 1,812 deep-sea vessels of 1,661,378 tons; at Vancouver it was 2,894,789 tons, including 541 foreign-going steamers of 1,745,522 tons.

AN AVENUE OF TRADE

Last year the exports, merchandise only, totalled \$77,247,666, and imports \$63,694,691. The growth of trade through its ports since British Columbia entered Confederation is indicated by the following extracts from the yearly totals of imports and exports:—

Year	Exports	Imports	Totals
1872.....	\$ 1,912,107	\$ 1,790,352	\$ 3,702,459
1890.....	5,763,467	4,379,272	10,142,739
1900.....	17,851,812	10,560,532	28,412,344
1910.....	25,068,411	27,091,019	52,159,430
1916.....	39,153,586	33,142,569	72,296,155
1917.....	46,901,344	42,140,148	89,041,492
1918.....	58,614,907	56,039,799	114,654,706
1919.....	77,247,666	63,694,691	140,942,357

British Columbia

Lack of available tonnage during the past few years has prevented the exports assuming much larger proportions.

WEALTH FROM NATURAL RESOURCES

Development in British Columbia is proceeding steadily, and with marked strides, notably within the past decade. In 1881, not considering the transient population which came and went with the rise and wane of the rich Cariboo and other placer-gold fields of the early days of the province, the white population was computed at about 9,000, in addition to the Indians. Now the Dominion Census Department places present population at 718,660, but this is considered too high in British Columbia.

The following figures testify to increases along the various lines of production:—

Year	Mining	Forest	Agricultural	Fishery
1910.....	26,377,066	.....	\$14,398,990	\$10,314,755
1914.....	24,202,924	29,150,000	30,184,100	13,891,398
1915.....	29,447,508	.....	31,127,801	11,515,086
1916.....	32,063,514	35,528,000	32,182,915	14,538,320
1917.....	36,141,926	48,300,469	37,661,150	14,637,346
1918.....	41,782,474	54,162,523	49,444,308	21,518,595
1919.....	33,421,333	70,285,094	62,384,556	25,000,000

VALUE OF PRODUCTS PER CAPITA

The production from the four industries last year exceeded \$414 for every man, woman and child in the province—\$152.46 from the forests, \$135.56 from agriculture, \$77.63 from the mines, and \$54.34 from the fisheries.

The bank clearings of some of the cities are also indicative of the advance being made. These for Vancouver and Victoria for the past few years follow:—

	Vancouver	Victoria
1915.....	\$283,603,563	\$ 76,677,926
1916.....	335,908,527	80,331,121
1917.....	447,181,979	84,822,216
1918.....	577,671,063	101,471,852
1919.....	665,000,000	123,351,345

No census of the manufacturing industry has been taken since 1917, when there were 1,772 plants, compared with 363 plants ten years before.

During 1918, 42 vessels, mostly steamers, totalling 155,600 tons dead weight, were built in British Columbia shipyards, and 28 ships were launched last year, while a number of 8,100 ton steel steamers are under construction at Vancouver, Victoria, and Prince Rupert yards.

British Columbia

Of the important industries, mining was earliest developed. In the fifties, when settlement was beginning, miners washed placer gold on the Fraser, Thompson and Kootenay streams, working northward until the Cariboo placers were found, which in 1863 yielded nearly \$4,000,000 from two short creeks. Later the Omineca, and recently Atlin districts attracted placer miners. Since the workings became too deep for pick and shovel methods, hydraulicking and dredging operations have been carried on with modern equipment. The Government is now engaged in test drilling, notably in Cariboo, to investigate the deep deposits. Coal was discovered by Hudson's Bay men in 1835, but not until 1875 did output exceed 100,000 tons a year. The Blue Bell, a silver-lead mine, was discovered by Douglas, the explorer, in 1820, but lode-mining did not begin on any scale until 1887, when the production was \$26,547 in silver and lead.

VALUE OF MINERAL PRODUCTION

Production from the mines during the past three years was:—

	1917	1918	1919
Gold, placer.....	\$ 496,000	\$ 329,000	\$ 286,500
Gold, lode.....	2,367,190	3,403,812	2,930,365
Silver.....	2,265,749	3,215,870	3,871,063
Lead.....	2,951,020	2,928,017	1,658,121
Copper.....	16,038,256	15,143,449	8,631,205
Zinc.....	3,166,259	2,899,040	2,717,803
Coal and Coke.....	8,484,343	12,833,994	12,476,276
Miscellaneous.....	1,241,575	1,038,202	850,000

The indicated metallic resources now known have an estimated value of \$3,600,000,000, and coal, \$216,000,000,000. A table published by the International Geological Congress, 1913, estimated the coal reserves at 73,874,942,000 metric tons. Coal is the largest contributor to mining production. About 2,500,000 tons per year are being produced principally by the Vancouver Island and Crowsnest mines, and to lesser extent by the Nicola and Similkameen mines.

Copper is second in aggregate of productive value, the total exceeding several times other metals. In 1919 copper production totalled 45,984,046 lbs., a falling off, since the war demands ceased. Large smelters and concentrators are operated at Anyox, Observatory Inlet, Britannia Beach, Trail, and Ladysmith.

Dividends paid by eight mining companies in British Columbia in 1919 totalled \$2,931,380.

The Rossland, Boundary-Yale, and Skeena mining areas are the largest of the lode-gold producers. Slocan is the largest

British Columbia

silver-producing district, about 52% being mined there. There were over 40 shipping mines, in addition to the undeveloped properties, in that district in 1919. About 75% of the silver comes from treatment of silver-lead-zinc ores, the balance from smelting copper, gold, silver ores.

Last year the Vancouver Island collieries shipped 1,690,724 tons; Crowsnest 659,403; Nicola and Similkameen 152,731; and Telkwa, which began shipping to Prince Rupert in 1918, 1500; in addition the first-named fields produced 43,517 and 55,081 tons of the coke respectively. Large known deposits of anthracitic coal exist in Groundhog district, the field covering 75 miles long by 30 miles wide, where development waits upon transportation. Other known deposits are in Peace River, on Graham Island, at headwaters of Nass, Bulkley, Zymotez and Bowron Rivers, and other points; in fact, a vast area lies dormant. The Rocky Mountain coalfields on either side of the range are estimated to have 44,130,000,000 tons, 81% in British Columbia, practically all available from the Valley of Elk River.

While it is known that there are extensive deposits of iron ores there has been little production so far. It is considered that conditions are suitable for establishment of an iron-smelting plant on the British Columbia Coast. Experts agree that there is an adequate supply of magnetite-iron ore, sufficiently free from impurities as to be within the Bessemer limit, to supply ore for such a plant. Notable among the known iron deposits is an extensive one of bog or limonite iron ore near Taseko River in Clinton division over an area about 25 miles square; experts consider that the possible extent is about 50,000,000 tons of iron ore, much of which can be mined with a steam shovel. Near Mons other deposits exist, and on Vancouver and adjacent Islands, are a number of other iron deposits. Many of the rarer minerals are found, such as molybdenum, manganese, chromite, tungsten, and others. A shipment of arsenic worth \$40,000 was made last year from the Nickel Plate Mine. Various other economic deposits have been found, covering a wide range—talc, fluorspar, magnesite, gypsum, etc., and from some lakes in the interior, epsom salts is shipped.

FORESTS

The forest area of British Columbia covers about 65,000,000 acres, with stands of varying density. The cut at present is but a small proportion of the annual growth; last year it was 1,758,330,000 board feet, and the value of forest products was \$70,285,094.

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The following computation of the present timber stand is made by the Commission of Conservation:—

Species	Total Bd. Ft.
Western Red Cedar.....	77,019,000,000
Douglas Fir.....	76,573,000,000
Spruce.....	72,375,000,000
Western Hemlock.....	64,164,000,000
Balsam.....	32,838,000,000
Lodgepole Pine.....	12,150,000,000
Western Yellow Pine.....	4,208,000,000
Yellow Cypress.....	3,700,000,000
Western Larch.....	3,152,000,000
White Pine.....	2,717,000,000
Black Cottonwood.....	672,000,000
Total.....	349,568,000,000

The lumber industry has, vying with mining, played an important part in the development of British Columbia. Following upon small mills built to supply settlers at Esquimalt and Sooke, and Vancouver Island, mills for export were established at Alberni in 1861. About 1865 the Vancouver mills were established and shipped 25 to 30 million feet per annum for some years until the Chemainus mills began shipping, and since annual foreign shipments have ranged from 50 to 90 million feet—last year they exceeded 105 millions. With provision of railway transportation new mills were added. Now about 300 sawmills and shingle mills and seven pulp and paper mills are operated, with a number of subsidiary enterprises, sash and door, box-manufacturing, cooperage, veneer, woodpipe, creosoting and other plants. Experts consider that the future will see a great utilization of by-products. Development of the industry is shown by the increasing value of annual forest production—the figures for 1910 being \$15,000,000 and in 1919, \$70,000,000.

The amount of lumber cut last year was 1,758,330,000 feet, making a total cut since 1856 of 19,506,720,000 feet.

Water-borne exports, now hampered by prevailing freighting conditions, are to the United Kingdom and Europe, Australasia, the Orient and United States. Last year the water-borne shipments totalled 105,111,090 feet. Figures for the past six years follow:—

Year	Board Feet	Year	Board Feet
1914.....	38,031,246	1917.....	43,922,563
1915.....	58,074,773	1918.....	88,069,029
1916.....	43,676,523	1919.....	105,111,090

Revenue from the forests totals about a quarter of provincial revenue. Last year it amounted to \$2,494,973; 1918—\$2,472,703; 1917—\$2,162,170.



FELLING DOUGLAS FIR, COAST DISTRICT, BRITISH COLUMBIA



A BRITISH COLUMBIA PULP AND PAPER MILL

British Columbia

In 1918 the Imperial Munitions Board called upon British Columbia to furnish spruce for aeroplane construction for war purposes. In 11 months 26,124,000 feet of clear spruce and 9,224,000 feet of fir were supplied—enough to build 20,000 aeroplanes.

AGRICULTURE

The arable area of British Columbia has been variously estimated to aggregate from 22 to 30 million acres. About 40 per cent. of the province lies above timberline; approximately a like amount is timbered, a large proportion carrying valuable forests. Except in the extensive lake basins of the central interior and the large plateau area lying east of the Rockies in the north where there are great connective areas considered suitable for mixed-farming and dairying, the farming lands are found in the various valleys where rich river-bottom and fertile benches offer scope for varied branches of agricultural endeavour. In the plateau regions of the interior there are wide open belts with considerable grassland where large quantities of stock are ranged. There are various factors to be considered in different localities—land-clearing, irrigation, dyking, and draining according to local conditions. Though only a small proportion of the possible arable area is now under cultivation the value of agricultural products in British Columbia last year totalled \$62,500,000—over \$130 per capita.

There are many especially favoured valleys in British Columbia, some of which have become world famous, notably the Okanagan Valley, a great fruit-producing centre. Roughly two million acres in British Columbia are considered eminently adapted for fruit-growing. The first carload of fruit was shipped to the British market in 1903, and in 1904 but 14,000 acres were planted, the output being worth about \$600,000. By 1910 the production reached \$2,000,000; in 1918 it was \$4,415,160 and last year \$6,900,000.

The oldest form of farming in British Columbia is cattle-ranching; it has been carried on since settlement began. In the bunch-grass areas of the southern interior and the great rolling plateaus of the Fraser basin, notably in Nicola, Osoos, Lillooet and Cariboo districts large herds of beef cattle are ranged and a number of herds of sheep are kept. The last stock census, in 1918, showed 246,130 cattle, 44,131 horses, 45,291 sheep, 39,805 swine, and over a million poultry. A number of ranches raised cattle on a large scale. The number of creameries is being constantly augmented. The experience of the past few years has shown that no part of Canada can surpass British Columbia in the matter of seed-production.

British Columbia

Irrigation is an important adjunct to agriculture in the drier valleys and there is much development, particularly in the southern interior. Private operators and the Department of Lands have undertaken extensive irrigation works in various districts to augment production.

As can be imagined when the divergent physiographical and climatic conditions prevailing in different parts are considered the districts differ in many respects, some being fairly open, some requiring heavy clearing before they can be cultivated, others require drainage, others irrigation. There are, however, many fertile valleys and other areas and settlement is increasing substantially following upon the provision of transportation facilities.

FISHERIES AND HUNTING

Last year the fisheries production was valued at over \$25,000,000, about 25,000 men were employed and \$15,000,000 paid in wages. Over 20 species of edible fish are now marketed. There are 84 well-equipped canneries on the Fraser, Skeena, Nass, Rivers Inlet and other northern waters, which since commercial salmon fishing began on the Fraser in 1876 have yearly marketed large packs in European, United States, Australian and other markets. The salmon pack last year totalled 1,393,156 cases, valued at \$10,525,705. At Vancouver, Prince Rupert, and other coast ports halibut fishing vessels can be seen any day during most of the year unloading catches. Prince Rupert, since the Grand Trunk Pacific Railway was completed in 1914, has become an increasingly important fishing centre, with a fleet of trawlers bringing catches to the cold-storage plants, one being the largest of its kind, whence shipments are made to many markets as far east as Boston and New York. Herring is taken to considerable extent, a large amount being salted and exported to Japan. Clams and oysters are canned.

Whaling is an important industry. A fleet of steam whalers work each season from stations established on Vancouver and Queen Charlotte Islands, the catches being towed to the stations where the carcasses are converted into whale-oil, fertiliser, and various by-products. Recently companies were organized to fish for sharks to convert them into oil, fertiliser, leather, etc. Dog-fish have been converted into oil at some plants for several years.

Prior to 1911 when the pelagic sealing treaty was made with the United States and Japan forbidding pelagic sealing, Victoria was a great fur-sealing depot, from 40 to 64 schooners leaving yearly for Behring Sea, and yearly valuable catches of pelts were landed.

British Columbia

The sportsman will find a great variety of game—animals, birds, fishes—in British Columbia. To the hunter with rifle or smooth-bore, or the angler or troller, there is a wide choice. Game includes moose, bear, caribou, wapiti, mountain goats and sheep, deer, and timber wolves, coyote, cougar, panther, wild-cat are found. The furbearers include beaver, marten, mink, lynx, musk-rat, foxes—a number of farms breed foxes for their skins, about 30 being now established. Furs valued at about \$2,000,000 are shipped yearly, the catch of white trappers and Indians. Some trappers have earned as much as \$2,000 for a few months' work. Wing shooting is plentiful; five species of grouse and quantities of wild fowl, from swans to teal, abound in suitable localities, also pheasant, ptarmigan and varied species of feathered game. The marshes of the warm southern valleys swarm with mallard and other ducks in the autumn and are much frequented by wild geese during their migrations. Game fishes of various species are plentiful.

Yearly parties of big game hunters visit British Columbia, notably Cassiar district, returning laden with trophies. Three large game reserves exist, Yalakom, home of the mountain sheep, goat and bear, in Lillooet district, 179,000 acres; Morkill River, tributary to Fraser River, north of Grand Trunk Pacific Railway, in Fort George district, 566,160 acres; and Elk River, Kootenay, 149,760 acres.

SCENIC ATTRACTIONS AND PARKS

For the tourist and pleasure-seeker British Columbia offers much. The grandeur and beauty of the scenery is world-famous, outdoor sports, camping, hunting, fishing, mountain-climbing, etc., being practical during the larger part of the year. Strathcona Park, 530,466 acres, in the centre of Vancouver Island with magnificent mountain and forest scenery, and Mount Robson Park, 409,600 acres, on the western slope of the Rockies near Yellowhead Pass are public parks. The latter includes Mount Robson, 13,068 feet, and a number of other peaks over 10,000 feet high. It is likely that another mountain park, within 40 miles of Vancouver, a few hours' walk from the Pacific Great Eastern Railway, surrounding Mount Garibaldi, will shortly be made accessible by motor road. For the motorist numerous highways with many points of scenic and historic interest are provided; there are good hotels and other conveniences.

EDUCATION

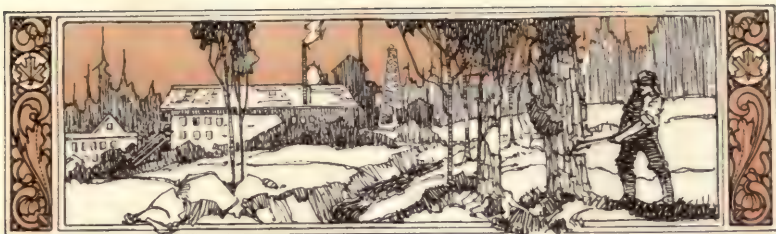
Since 1872 British Columbia has had a free non-sectarian system of public and high schools. The latter, 43 in all, are

British Columbia

maintained at various centres of population, also two Provincial Normal Schools, the British Columbia University, and 856 schools. There are in the cities, a number of good private schools. School attendance is compulsory between the ages of 7 and 14 years. In country districts wherever 10 pupils can be mustered a school is established. At present 218 teachers are engaged in the high schools and 2,246 in the other schools.

HISTORY

The first Europeans to visit British Columbia were the La Verendrye Brothers who crossed the Rockies by Crowsnest Pass in 1650, and Juan Perez of Spain's navy came by sea and sighted Estevan Point in 1774. Capt. Cook visited Nootka in 1785. Following upon his report other navigators came and in 1788 Capt. Meares built a fort and launched a 40 ton vessel at Nootka. Claims to the territory by Spain being disposed of, Capt. Vancouver came to plant the British flag and in 1792 he circumnavigated Vancouver Island. In 1849 Vancouver Island was leased to the Hudson's Bay Co. which six years before had established Fort Victoria, and the Island declared a Crown Colony, Richard Blanshard coming out as Governor. He resigned in 1850 and Sir James Douglas, factor of the Hudson's Bay Co. was appointed. A Legislative Assembly was called in 1856. The mainland was then called New Caledonia. The Hudson's Bay Co. had established a chain of fur-trading posts, mostly by intrepid explorers from 1805 to 1812. The Hudson's Bay men did much for early exploration. Alexander Mackenzie was the first to cross the province, he reaching the ocean at Bella Coola in 1793. In 1857 gold was found on Fraser River and a series of gold rushes occurred to various placer grounds culminating in the rich Cariboo diggings which attracted 35,000 men from various parts of the world. The mainland was organized when the gold rushes started, as British Columbia, and in 1866 united with Vancouver Island, the capital being moved from New Westminster, then called Sapperton—the depot of the Royal Engineers who did the early surveying and road making—to Victoria. On July 20th, 1871, British Columbia entered Confederation and became a province of Canada.



North West Territories



THE North West Territories include all the islands of the Arctic Archipelago, those in Hudson Bay and James Bay, and all the northern part of the continent bounded on the south by the provinces of Manitoba, Saskatchewan, Alberta, and British Columbia, on the east by Hudson Bay, and on the west by the Yukon Territory. The territory was organized on the 1st September, 1905. By the extension of the boundaries of Manitoba and Quebec in 1912 the area of the territory was reduced to its present size, namely, 1,242,224 square miles. The population numbers about 18,000, composed chiefly of Indians and Eskimo, with a few officials of the Hudson's Bay Company and other fur-trading companies, missionaries, prospectors, and members of the Royal Canadian Mounted Police. The administration is under the jurisdiction of a Commissioner. Schools are maintained by the missionary stations at Providence, Resolution, Hay River, Fort McPherson, Simpson, and Herschell Island, to which small yearly grants are given by the Dominion Government.

CLIMATE—AGRICULTURE

The climate varies from the coldest Arctic to cold temperate in the region just north of the Province of Alberta. The territory adjacent to Hudson Bay is much colder and damper than the territory lying in the same latitude adjacent to the Mackenzie River. The latter is tempered by the comparatively warm west winds blowing over the mountains from the Pacific Ocean.

Though there is little chance that any of this territory will become an agricultural country owing to the severity of the climate, yet there is no doubt that in the most southerly region all the ordinary garden vegetables and barley can be grown. Even at Fort McPherson, north of the Arctic Circle, small



SEALS ASHORE MACKENZIE BAY, N.W.T.

The Mackenzie Basin supplies 20% of the \$10,000,000 of furs exported from Canada annually.



FORT McPHERSON, N.W.T.

Showing Eskimo whale boats and other fishing apparatus. The farther north the greater is the yield and higher is the quality of fish.

potatoes have, with care, been raised. Cattle and horses have been kept at many of the trading posts.

A line drawn from Churchill on the Hudson Bay in a north-west direction to the mouth of the Mackenzie would divide roughly the treeless lands from the forested areas. Even north of this line, however, as in the case of the Thelon River, there are limited areas of spruce forest along the immediate shores of the rivers and lakes. In no part is there forest of any great commercial value, but in the western part there will always be plenty of wood for fuel. South of Great Slave Lake, and west of Slave River, is a really well-wooded country. Surveyors are of the opinion that a large supply of pulpwood might be obtained there. The Mackenzie Basin is wooded, more or less, almost to the shores of the Arctic and in many places spruce fit for lumber might be obtained for local purposes.

MINERALS

While the agricultural possibilities of the country will never attract settlers, there is every reason to believe that its mineral resources are equal to those of any other part of Canada. Indications of mineral wealth obtrude themselves prominently before the eyes of the most unobservant. It is known that the mineral resources include deposits of gold, copper, lead, zinc, and iron ores, and coal, gypsum, salt, oil and gas; and there are strong probabilities that when the region becomes prospected it will be found to contain other metallic products of commercial importance. Prospects at present indicate a rich *asset of oil* in the Mackenzie Basin, and it appears from the evidence that here is one of the largest areas of possible oil-bearing country yet unexplored on the face of the earth. Springs of heavy tarry oil rise to the surface at a number of points in the central part of the basin from latitude 58° northward, almost to the Arctic Ocean. The source of the bitumen in this region is believed to be in the Devonian rocks, the total area of which within the Mackenzie Basin cannot be less than 300,000 square miles.

There is every reason to believe that the *coal fields* of Alberta lying on the eastern slope of the Rocky Mountains extend north through the Mackenzie Valley. Near the mouth of Great Bear River the lignite has been burning since Alexander Mackenzie passed that way in 1789. William Ogilvie saw a seam of coal on the Rat River, near the delta of the Mackenzie, and coal was observed in Melville and other islands of the Arctic Ocean by various explorers.

North West Territories

The existence of *copper* has been known since the earliest times. It is found in several places in the mountainous country to the west of the Coppermine River, where the natives formerly were thought to have obtained the pieces of copper often found in their possession. Native copper-bearing rocks are found along the west coast of Bathurst Inlet. Steffansson heard from the Eskimo that copper was very abundant north of Prince Albert Sound on Victoria Island. Sir John Ross reported copper-ore at Agnew and Lindsay rivers, both on the east coast of Boothia Peninsula. Thus it will be seen that this metal is very widely distributed along the Arctic coast.

Lead ore was reported by Dr. John Rae to exist on the east coast of Franklin Isthmus, and deposits of galena and zinc blend occur in limestone on the south shore of Great Slave Lake under conditions similar to the lead-zinc deposits of southern Wisconsin and Missouri.

In 1917 the Hudson's Bay Company took out a small shipment of high-grade crucible *plumbago* from the vicinity of Lake Harbour on Baffin Island. *Iron ore* is reported to exist on some of the islands of Hudson Bay.

FISH AND GAME

The quality and quantity of the fish cannot be over-estimated. The cold waters of the northern lakes and rivers give a firmness and flavour which cannot be excelled. The farther north, the greater the yield and quality of fish. Great Slave Lake abounds with the most excellent lake trout, whitefish, inconnu, etc. Lake trout of from 16 to 20 pounds are caught in Artillery Lake, west of Great Slave Lake. Great Bear Lake is said to contain the finest quality of fish of any other lake in the north. One of the Franklin expeditions took 50,000 whitefish on a northern arm of this lake. David T. Hanbury reported that "he never saw such a grand river for fish as the Thelon River." At Aberdeen Lake he reported "in one night a single short net took over 100 pounds weight (of fish). This was indeed a land of plenty." All the rivers flowing into the northern part of Hudson Bay, as well as all the rivers flowing into the Arctic Ocean, abound with salmon. In Stanley River, Boothia Peninsula, Sir John Ross reported Arctic salmon in vast numbers and the same is reported by Captain Bernier of the rivers and lakes of western Baffin Island.

Every year whalers come up through the Behring Sea as far as Herschell Island to carry on the whale fishery, and others through Hudson Strait to visit the northern part of Hudson Bay. Cod are known to exist in Hudson and James bays and may develop into an important fishing industry. Seal and walrus are found generally throughout the Arctic region.

North West Territories

Caribou exist in the islands of the Arctic and are still found in immense herds wandering over the treeless lands. Their flesh is excellent eating, except during "fly time," and forms the staple food for the Eskimo and Indian.

The musk-ox is perhaps the most valuable large animal of the north. It does not migrate like the caribou and is found in the most northerly and coldest islands of the Arctic Sea. It was formerly very numerous on the mainland, but it has been so much hunted for its valuable hide by whalers and others that it has retired to the more inaccessible parts. In 1902 the U.S. schooner "Era" took home over 350 skins from Chesterfield Inlet, and the Scotch steamer "Active" between 150 and 200 skins. In consequence of this, the Royal Northwest Mounted Police, then stationed at Fullerton, issued a notice in the following year prohibiting the export of musk-ox hides. Fears were entertained that the musk-ox might soon become extinct and so of late years the killing of the animal and the export of its hide is forbidden. Only in case of absolute starvation may an animal be slaughtered.

Other large animals such as the moose, bear, wolf, mountain goats and mountain sheep are found in the mountains west of the Mackenzie Basin. The last remnants of the wood-bison or buffalo still roam to the west of Slave River.

By an Order-in-Council of the Dominion Government, dated 25th July, 1918, a certain tract in the northern part of the Province of Manitoba and lying partly in the Northwest Territories, directly north of Manitoba, was set aside as a grazing ground for reindeer. Domesticated reindeer are to be introduced into the territory and permits are to be granted for grazing privileges in the above mentioned area.

The basin of the Mackenzie River is the best fur producing part of North America, and of the \$10,000,000 worth of furs exported annually by Canada, the Mackenzie Basin is said to supply nearly \$2,000,000.

The principal fur-bearing animals are the beaver, musk-rat, lynx, red, cross, black and Arctic foxes, otter, mink, marten, fisher, wolverine, wolf, weasel (ermine), skunk, rabbit and musk-ox.

TRANSPORTATION

Transportation during the winter is possible by only one means, dog-team, but in the spring, when the ice leaves the rivers and lakes, it is possible to travel for thousands of miles by steamboat. From Fort Smith there is uninterrupted navigation for steamboats to Fort McPherson, a distance of about 1,400 miles. The Hudson's Bay Company's steamer makes this trip yearly.



DAWSON CITY

The centre of the gold mining industry in the Yukon Territory. Recently important discoveries have been made and are being exploited.



POTATO GARDEN AT FORT SIMPSON, N.W.T.
Latitude 62°, 800 miles north of Calgary.

North West Territories

The Great Slave Lake extends a long distance towards the east and Hudson Bay, and the portage from the lake to the Thelon River is comparatively short, thus giving access by canoe from Mackenzie River to Hudson Bay.

The construction of the railway northward to McMurray on the Athabasca places the whole of the Mackenzie Basin within comparatively easy reach, while the line being constructed to Hudson Bay will open the very heart of the Arctic prairie to the prospector and the sportsman, for by way of Chesterfield Inlet and the Thelon River there is a splendid waterway, with only one interruption, for a distance of 550 miles into the interior.

YUKON TERRITORY

On June 13th, 1898, the Yukon was created a territory by Act of Parliament, and provision was made for local government by a legislative council composed of a commissioner and six persons to be appointed by the Governor-in-Council. The office of commissioner, however, has been discontinued and the territory is now administered by the Gold Commissioner. The territory returns one member to the Dominion House at Ottawa.

The Yukon has a total area of about 207,076 square miles and a population of only about 5,000.

A superintendent of schools for the Yukon Territory was appointed in 1902, and in the same year a general system of education was inaugurated throughout the territory.

The damp climate of the Pacific seaboard is prevented by the coast range of mountains from penetrating far into the Yukon Territory and consequently the climate is dry and warm in summer and cold in winter, with a light snowfall. Of course in the northern part and in parts where the altitude is very great the climate is sub-Arctic or Arctic.

It was formerly believed by many that neither vegetables nor grain would ever be raised, but this has fortunately been long disproved. In 1887 Dr. Dawson computed that there was an area of 60,000 square miles capable of utilization for cultivation of crops and the raising of cattle, and to-day this is a very conservative estimate. The short warm summer with its continuous daylight tends to ripen and mature crops in a remarkably short period of time. Comparatively large quantities of oats, rye, potatoes, and other vegetables are grown along the Yukon valley, especially in the vicinity of Dawson. Lettuce, cucumbers and radishes are grown, and tomatoes, which do not often ripen in the vicinity of Winnipeg, mature at Dawson. Fine crops of excellent potatoes are raised.

Yukon Territory

Most of us remember the famous discovery of gold on Bonanza Creek in 1896 and the wild stampede to the Klondike over the terrible White Pass, with its toll of death and privation. Though great quantities of the precious metal have since been taken out, the field still continues productive under improved machinery. The greatest production of gold was reached in 1900 when the output was \$22,275,000.

There are two silver mines in operation, both in the Duncan Creek District. The greatest production of silver was \$360,101 in 1916.

The copper-belt, as determined by present discoveries, extends along the valley of the Lewes River from a point east of Dugdale, on the White Pass Railway, northwestward to the base of Mount Haeckel, a distance of about 12 miles. The principal copper ores here are chalcopyrite and bornite. Native copper has long been known to occur in the White River basin, but most of the properties of economic value are in Alaskan territory and only one good property, situated on the south side of White River near Canyon City, and known as Discovery Copper grant, is in Canadian territory.

CHIEF MINERAL PRODUCTS

The beds found to be coal-bearing in Yukon occur in at least 18 distinct areas. In 13 of these, coal of economic importance has been discovered. The only two mines that have been in operation since 1908 are the Sour Dough mine on Coal Creek, and the Tantalus mine, situated on Lewes River about midway between Whitehorse and Dawson. In 1918 an adequate supply from the latter was placed in the bunkers at Dawson and it was reported that the quality of the coal improved as depth was reached. The following table shows the mineral production of Yukon for 1918:—

Copper.....	\$ 152,663	0.5% of the total production of Canada.
Gold.....	2,118,325	14.6% of the total production of Canada.
Lead.....	856	
Silver.....	69,594	
Tungsten concentrates	2,593	
Coal.....	11,600	
	<hr/>	
	\$2,355,631	

FORESTS, FISH AND GAME

Though the country is generally wooded there are no forests of any great commercial value. Sufficient exists for firewood, and much of the supply can be used for mining purposes. The

Yukon Territory

valleys are nearly always forested though the higher levels are frequently quite destitute of trees. Spruce is the principal forest tree.

Whitefish, inconnu, grayling, pike, and lake trout are found in greater or less abundance in the streams and lakes. Salmon ascend the Yukon and tributary streams in the spring season and are the principal source of fish for the Indians.

The Yukon Territory contains some of the best sections of game country in Canada, and many trappers and prospectors have been able to live for long periods almost entirely on the proceeds of the rifle and net. Of late years, however, game of all kinds has become very scarce in some localities, owing to the extensive killing carried on by those who hunt for the market offered by mining camps. Moose are probably more plentiful than in any other part of Canada. Other game are caribou, mountain sheep, mountain goats, black, brown and grizzly bears, and wolves.

Among the feathered game are geese, duck, ptarmigan, grouse and partridge.

As in other parts of the north the Hudson's Bay Company has carried on the fur-trade since the country was first explored and has maintained long established trading-posts. The chief fur-bearing animals are wolves, wolverine, beaver, otter, mink, marten, weasel (ermine), lynx, red, cross, silver, and even black fox.

During the year 1913, over 300 live silver, black and cross foxes were exported from the territory, but in March, 1914, legislation was enacted by the Yukon Council prohibiting the exportation of live foxes except under certain conditions. In consequence of this legislation many privately-owned ranches are now in operation. Mink farming is also carried on.

TRANSPORTATION

The Yukon River is navigable from Behring Sea to Whitehorse, a distance of over 2,000 miles, and, during the summer, from about the 10th of June until the 5th of October, this river is the great channel of transportation from the coast to the interior of the Yukon and Alaska. The railway of the White Pass and Yukon route extends from tidewater to Skagway, Alaska, where connection is made with ocean-going vessels, to Whitehorse, Y.T., on the headwaters of the Yukon River, a distance of 110 miles.

Lake Lebarge impedes navigation in the early summer as the ice on the lake remains until about three weeks after the general break-up on the Yukon River. Emergency traffic is hauled from

Yukon Territory

Whitehorse to the foot of the lake. As soon as the ice leaves Lake Lebarge, navigation is open between Whitehorse and Dawson and throughout the length of the Yukon River and its tributaries. A splendidly equipped fleet of steamers plies on regular schedules between Whitehorse and Dawson, the trip between these places being made in two days (down-stream) and from Dawson to Whitehorse (up-stream) in five days.

The stretch of the Yukon River, Dawson to St. Michael, 1,601 miles, is commonly called the Lower river, and on this route steamers operate, making connections at Dawson with the upper river steamers of the White Pass and Yukon route and at St. Michael with ocean-going vessels from Seattle and San Francisco.



EXAMPLES OF GROWTH IN THE YUKON

In the summer of 1902 the government built a winter road between Dawson and Whitehorse, a distance of approximately 365 miles, at a cost of \$129,000. In 1912 extensive changes were made in its location with a view to making it available for summer use, and to serve the residents of the mining districts of the lower Stewart River. The road can now be used by automobiles during the dry periods, and in the autumn before the snowfall becomes too heavy. A regular stage service to Dawson and intermediate points, by four or six horse coaches or sleighs, is maintained during the closed season of navigation.



Toronto



TORONTO, the seat of the Provincial Government, has, with its environs, a population of approximately 600,000 people, and is situated on the northerly shore of Lake Ontario. The older part of the city, about two and a half miles in width, is built on the underwater beach of prehistoric Lake Iroquois which rises from the present water's edge on a very uniform slope of approximately eighty feet to the mile, to the ancient shore line, which is marked by a sudden rise or low escarpment locally known as "The Hill." The newer part of the city is built on the Hill and has an elevation of about 300 feet above Lake Ontario. The Humber River, navigable for canoes and small craft for about two miles from its mouth, skirts the westerly part of the city, and the Don River cuts through the city towards its easterly end. The Don flows into Toronto harbor, which is formed by a sandy spit which leaves the main shore at the easterly limit of the city and extends westerly for about six miles, enclosing a natural bay two miles wide and thirty feet deep. The easterly and narrower half of the bay, owing to the sediment annually brought down by the Don, was very shallow and marshy and was known as Ashbridge's Bay. The westerly half forms the harbor proper which consists of a nearly circular basin two miles in diameter immediately in front of the centre of the city.

HISTORY

The name "Toronto" is a word of Indian origin, signifying "Place of Meeting." Lake Simcoe was known as "Lake Toronto," and the Hurons or Wyandots inhabiting its shores were the "Torontogueronons," that is "The Toronto Nations." In 1749 the French established a fort on the north shore of Lake Ontario at what is now the southwest corner of the Exhibition Grounds, naming it "Fort Rouille" after the French Minister of Marine.



CITY HALL, TORONTO



UNIVERSITY OF TORONTO, MAIN BUILDING

Toronto

It was, however, more generally known as "The Fort at Toronto" and was marked on the maps of that date as "Fort Toronto," while Toronto Harbor appeared on the same maps as "Toronto Bay." In this way the name "Toronto" became affixed to its present location.

In the spring of 1793, John Graves Simcoe, the first Lieutenant-Governor of Upper Canada, made Toronto the capital of the new province, re-named it "York" and instructed Alexander Aitken, a Deputy Surveyor, to make a survey of the harbor and prepare a plan showing thereon the contemplated military improvements. There appears to be no record of the population previous to 1803 or 1804 when a census was taken and it was found that the inhabitants numbered 456. The aggregate value of the property in the Town of York at that time was £62 (about \$300), while the area enclosed by the town plot was 42 acres.

In 1806 George Heriot, Deputy Post Master General of British North America, visited "York" and described it as "A long and narrow peninsula distinguished by the appellation of 'Gibraltar Point,' forms and embraces this harbour, securing it from the storms of the lake and rendering it the safest of any around the coast of that sea of fresh waters. Stores and block-houses are constructed near the extremity of this point. A spot called the 'Garrison' stands on the bank of the mainland opposite to the point and consists only of a wooden blockhouse and some small cottages of the same material, little superior to temporary huts."

The population in the year following Mr. Heriot's visit was 1,058. This continued to increase steadily until 1813 when the war with America brought calamities to the town from the disastrous effects of which it took several years to recover, so much so, that in 1821, the population only amounted to 1,559. In 1826 the town consisted of 450 houses, the majority of which were of wood, the population being 1,719, which, in 1830 had increased to 2,860, an advance of 66% in four years. From this date forward the town progressed without suffering any material check, indeed, so rapid was its growth that in 1833 the population had arisen to 8,257. Legislation in March, 1834, extended the limits of the town of York, erecting it into a city and incorporating it under the name of the City of Toronto. Under the Act of Incorporation the city was divided into five wards and two aldermen and two councilmen were elected for each Ward, making a total of ten aldermen and ten councilmen in the City Council; the Mayor was chosen by the Council from among the Ward representatives of the city. William Lyon Mackenzie was the first Mayor.

Toronto

Growth continued and necessitated periodical adjustment of Ward boundaries and the creation of new ones, and also with growth came the need of further adjustment in the form of government. At present there are three bodies in the Civic Government of Toronto, the Legislative, the Executive or Administrative, and the Operative. The first of these consists of the Mayor, the Board of Control and the Aldermen. The Board of Control is the Executive body, while the Operative functions are conducted by the several Commissioners.

Toronto secures its water from Lake Ontario and is consequently assured of a constant and permanent supply of good water. The total pumping capacity of the water works plant is 196,000,000 gallons per 24 hours, and the average daily consumption 64,000,000 gallons. Before being delivered to the citizens the water is pumped into mechanical filter beds which have a daily capacity of 100,000,000 gallons; all bacteriological impurities are removed and it is distributed to the consumers through 587 miles of watermains.

LIGHT, POWER AND TRANSPORTATION

The Hydro-Electric Power Commission, a provincial undertaking, is operated in conjunction with the municipalities of the province; it transmits electric power from Niagara Falls to Toronto and a number of other cities and municipalities. Power is delivered to the sub-station of the Toronto Hydro Electric System, administered by a Commission which furnishes power for industrial and domestic purposes as well as for the 45,200 street lights. Privately owned enterprises also furnish power for residential lighting, manufacturing purposes and for the operation of the street railway.

Transcontinental railroads and their branches gridiron the province. Naturally the central point is Toronto where the traffic, both on land and water, originates. Toronto's harbor is easy of access, deep, capacious and entirely land locked. Extensive waterfront improvements are now being carried out. Over six miles of permanent concrete dock, affording accommodation for vessels of 24 feet draught, have already been constructed. The St. Lawrence, Welland and Sault Canals provide Toronto with a continuous waterway west to the Head of the Great Lakes and east to Montreal and Quebec. Up and down this waterway yearly pass vessels aggregating millions of tons, giving Toronto a continuous passenger and freight service. Passenger boats also make daily trips to Hamilton, Port Dalhousie and Niagara, and a regular service to Rochester, Kingston and Montreal.

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During the season of 1919 Toronto harbor's vessel tonnage amounted to 5,247,490 tons.

Toronto is also the hub of a network of electric railways and more are in course of construction and others projected. Of the lines already in operation one runs north for a distance of sixty miles, through one of the most thickly populated districts of Ontario, one north-west to Guelph, a distance of forty-five miles, and one west along the lake for sixteen miles and another east for the same distance.

Two new lines, one connecting Toronto with Hamilton and Niagara Falls, and one east as far as Port Hope, are contemplated by the Hydro Electric Power Commission of Ontario.

EDUCATION

Ninety-seven public schools, thirty-four Separate schools, ten High schools and collegiâtes, one Normal School, one Model School, one High School of Commerce, one Central Technical School, thirteen private schools for girls and boys, two Universities, sixteen Public Libraries, six University Libraries, four other libraries, six museums and the law school at Osgoode Hall where students must qualify before being admitted to practise, place Toronto in the front rank in matters educational. There are also numerous business colleges distributed over all parts of the city. The elementary schools to which are attached kindergarten branches, provide primary education, the High Schools and Collegiâtes forming the link between them and the University. The Normal School, to which the Model School is attached, prepares candidates in the theory and art of organizing, governing and instructing pupils of the elementary schools of Ontario. The High School of Commerce and the Central Technical School are well equipped for the purpose of giving instruction respectively of a commercial and technical character.

The University of Toronto is one of the largest universities in the Empire, having an attendance of five thousand students; with it are federated Trinity College, Victoria College, St. Michael's College, Wycliffe College and Knox College. McMaster University is also a factor of importance in this regard. Provisions for higher education, the citizens regard as being equal to those of any other city, and they are making annually further important additions to plant and buildings. For the study of law and of music the existing facilities are of the highest class. The University Library contains more than 150,000 volumes and 50,000 pamphlets which are accessible to students of all federated and affiliated institutions, while the Reference Branch



HORTICULTURAL BUILDING, CANADIAN NATIONAL EXHIBITION

of the Toronto Public Library contains over 100,000 works of reference and is largely patronized by university students and others.

CANADIAN NATIONAL EXHIBITION

The Canadian National Exhibition, held annually at Toronto, is a direct outcome of the first Agricultural Society of Upper Canada in reference to which the late Col. John Clark, in his memoirs, says:—"I have a perfect recollection of the first Agricultural Society patronized by Governor Simcoe, who subscribed his ten guineas a year cheerfully." The next Society was formed at York in 1818, and there is mention of a cattle show held at York in 1820 with prizes of different grades distributed under its auspices. In 1830, an Act of Parliament was passed having for its object the encouragement of the establishing of Agricultural Societies in the province; it provided a bonus of £100 annually to Societies subscribing not less than £50 for the purpose of importing "valuable live stock, grain, grass seeds, useful implements or whatever else might conduce to the improvement of Agriculture in the province." Following the passing of this Act, District and County Agricultural Societies were formed in the various districts of Upper Canada and their counties. From these beginnings the present exhibition grew, until, in 1879, the Industrial Exhibition Association of Toronto was incorporated and under its provisions the Exhibition at Toronto became a permanent annual affair. In 1899 the Exhibition was taken over by the city and in 1912 the Act was amended changing the name from "The Industrial Exhibition Association" to "The Canadian National Exhibition Association," and also making other changes in connection with membership and management. The attendance at the yearly Exhibitions is well over one million people. The Exhibition grounds, which in 1878 only contained 60 acres with a water frontage of 400 feet, now cover an area of 264 acres and extend along the lake shore for over a mile; the buildings thereon, seventy-five in number, are well built, permanent structures, valued at \$2,500,000. The grounds and buildings are lighted by 60,000 electric lights. This year an extensive addition to the park is being made and, among other buildings, a large Live Stock Arena is to be built.

COMMERCE AND FINANCE

The live stock market of Toronto is the chief one in Canada. The Union Stock Yards, situated in the north-west part of the city, are 35 acres in extent and have accommodation for the

Toronto

assembling of 18,000 cattle, hogs, sheep and lambs. The value of the animals received at these yards in 1919 was \$68,978,000. A total of 1,628,482 cattle, swine and sheep were slaughtered at inspected establishments in the city during 1919, an increase of 263,159 animals as compared with 1918. The Meat Packing houses occupy a total area of 40 acres and have a cold storage capacity for 97,500 carcasses. The value of trade done by these houses in 1919 was \$99,900,698.

Toronto's civic budget for 1920 amounted in round figures to \$30,000,000, and there is every indication that the total, in future years, will far exceed this sum. The City's assessment in 1919 was \$637,771,320, and is based upon the value of land and improvements therein, income, and on the value of space occupied for business purposes. The current year's tax rate is $30\frac{1}{2}$ mills per \$1.00 or slightly more than three per cent. of the assessment.

Since October, 1915, there have been six Victory Loan issues in Canada, totalling \$2,361,011,700. Of the last three issues, amounting in all to \$1,795,069,400, which were classified, Ontario contributed \$895,143,200, Toronto subscribing \$372,454,500 of this amount; in other words, Ontario supplied one half of the total subscriptions of the whole of Canada, Toronto furnishing two-fifths of Ontario's share.

As a banking centre Toronto occupies a leading place in the Dominion. There are eighteen chartered banks in Canada, having a total paid up capital at the end of 1919 of \$119,252,969; total reserves \$124,925,000; total public deposits in Canada, \$1,855,131,598; total assets \$3,061,826,474. Of these, eight, with a total paid up capital of \$49,387,468 and a total reserve of \$58,800,000 have their head offices in Toronto. The bank clearings for the year 1919, amounting to \$4,251,781,893, represent more than 25% of the total for the Dominion.

MANUFACTURING

As a manufacturing centre, the City of Toronto occupies a commanding position, not only by reason of the size of its leading industries but on account of the great variety and extent of their products. There are few Made-in-Canada commodities which are not to-day produced in Toronto, while the list is being expanded at a rapid rate. Its large population, its rail and water transportation facilities, its hydro-electric power, all contribute to facilitate production, while the city's location in the midst of the most populous province of Canada gives it the best possible position from a marketing standpoint.

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The expansion of manufacturing in Toronto has been rapid as is evidenced by a reference to the following figures issued by the Bureau of Statistics, Ottawa. The tremendous growth between 1915 and 1917 is attributed to the war, which brought into existence a large number of new industries. There has been no subsequent compilation of figures but it is probable that the gain then made, in spite of the closing down of purely war industries, has been well maintained and that the figures for 1918 and 1919, when issued will show an increase.

Year	No. of Establishments	Capital	Employees	Salaries and Wages	Value of Products
1900.....	867	\$ 53,263,160	43,605	\$ 15,992,815	\$ 60,366,857
1905.....	957	70,618,397	46,783	22,464,060	89,272,139
1910.....	1,100	145,799,281	65,274	36,064,815	154,306,948
1915.....	1,231	217,001,803	72,298	45,561,889	219,143,728
1917.....	2,388	374,872,238	104,480	95,691,124	456,250,198

Toronto's largest industry is that devoted to the manufacture of clothing, including hats, gloves and furs. There are over two hundred factories in the city engaged in this work and their product is sold all over the Dominion. Next in importance is the metal industry, under which heading would be included all those plants making engines, boilers, machinery, implements, tools and metal goods of all sorts. Here again about two hundred establishments are in operation with a varied and extensive production. The chemical industry, which is one of steadily increasing importance, is carried on in about fifty plants. As for the printing and allied trades, there are also approximately eighty plants in operation, not including small custom plants which are quite numerous. The book publishing business centres in Toronto, and it is also the home of many publications circulating all over the Dominion. The manufacture of stationery and paper goods of all sorts is cared for in some sixty establishments.

The jewellery industry, including the manufacture of watch cases, gold and silverware, is quite extensive, there being no fewer than forty plants engaged in it. Likewise the musical instrument industry, which embraces the manufacture of pianos, piano actions, phonographs, band instruments, etc., is important, with twenty-six factories in the list. There are forty-five plants engaged in the lumber and woodenware industry; thirty-nine in the furniture and housefurnishing industry; thirty-two in the brick and building material industry; twenty-six in the harness and leather goods industry; twenty-four in the ice cream and confectionery industry; sixteen in the boot and shoe industry;



CONVOCAATION HALL, TORONTO
Meeting place of the Ninth Congress of Chambers of Commerce of the British Empire.

Toronto

eleven in the rubber industry; eleven in the flour and cereal industry and ten in the bread and biscuit industry.

Toronto has to-day over thirty plants making electrical goods of various sorts, over twenty plants making grocers' sundries, as many as fifteen plants producing glass and glassware, fourteen making paint, oils and varnish, nine engaged in the manufacture of carriages and wagons, eight making soap, seven making aerated water and similar lines, and five making cigars and tobaccos. It has nine packing houses and five breweries.

The list of different goods made in Toronto extends well into the thousands and runs through all sorts and sizes of articles from ships to buttons. Few industrial centres make a wider variety of goods. Fishing rods, boats, tents, pennants, kodaks, films, skates, sporting goods of all sorts, bicycles and automobiles, are all made here. So also are safety razors, umbrellas, smoking pipes, matches, spectacles, chewing gum, artificial limbs, brushes and various other articles of personal requirement. There are several plants making dolls and toys. Ice cream cones, sausage casings, yeast, dried milk and jam are among food products. Elevators, fire doors and safes; vacuum cleaners, mops and polishes; wall paper, carpets and fixtures; artificial flowers, regalia and dress forms are made. These are a few of Toronto's products.

The foregoing represents important groups of Toronto industries, but it may be of interest to note outstanding individual units. For the making of agricultural implements the largest single industry under one management to be found in the Empire is located here. During the war a very large plant was erected and operated successfully in the production of shells and other munitions under the auspices of the Imperial Munitions Board. This was a separate enterprise made possible by the availability of mechanical skill and had a marked result in adding volume to the effective supply of necessary war material. One more war success may be referred to—that of the manufacture of acetone. To assist in meeting war demands, the British Government endeavoured to supplement its supply of acetone from other sources by developing manufacture under a special process (bacteriologically producing acetone from corn) of which it had secured control. It remained for a distillery in Toronto, placed without cost, together with the owners' technical knowledge and experience, during conversion and operation at the disposal of the Imperial Government, to secure success with this process.

After a careful survey of the distillery referred to, the representative of the British Government asked that it produce at least 250 tons of acetone in the next fifteen months, which

would be to the end of 1917. The process was so closely allied to spirit distilling that the management decided to increase the fermenting capacity and thus increase the output, with the result that in the first fifteen months 1,080 odd tons were produced. Still further enlargements were made until the output reached slightly over 8 tons a day. The acetone produced was of the highest quality and not a single complaint was made.

As a result of this achievement and the research work carried on at this plant by an expert staff, under the practical direction of its owners, and the advice and co-operation which they afterwards so generously gave in the erection and equipment of other plants, production was also materially increased elsewhere.

TORONTO HARBOR

The development of its ten-mile waterfront at an estimated cost of \$25,000,000 is an important project in course of being carried out; it includes harbor improvements, industrial districts and park and recreational areas. To carry out this work the Toronto Harbor Commissioners were incorporated by Federal Act of Parliament, assented to May 19th, 1911. The Commission consists of five members, three of whom are appointed by the City Council and two by the Federal Government. The activities of the Commission commenced in February, 1912, and final plans for the waterfront improvements were submitted in the September following.

The work contemplated consisted of the reclamation of Ashbridge's Bay, a marshy tract of over 1,000 acres, now known as The Eastern Harbor Terminals, the construction of a ship channel, turning basin and circulating channel, marginal way wall and retaining walls on each side of the Keating Channel, the construction of a new harbor head line across the entire front of the inner harbor, 1,100 feet south of the present pier head line, and the reclamation of the area enclosed by it, to be known as The Central Harbor Terminals, deepening the whole harbor to a navigable depth of 24 feet with provision for an ultimate depth of 30 feet, the reclamation of 900 acres of park lands east and west along the lake front and on Toronto Island.

The Eastern Harbor Terminals is an industrial area devoted to heavy and light manufacturing, one and a half miles from the centre of the city, which, when completed, will contain 644 acres of factory sites, 235 acres of streets and railroad reservations, and 130 acres of waterways. A ship channel 6,800 feet long, 400 feet wide and 24 feet deep, terminating in a turning basin

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1,100 feet square, has been constructed, together with retaining walls on each side of the mouth of the Don River, a marginal way wall and pier furnishing over five miles of dockage, with accommodation for vessels of 24 feet draught, which depth can be increased to 30 feet by dredging as soon as the demands of navigation require it.

Work on this area is progressing rapidly; already 450 acres of land have been fully reclaimed and another 400 acres are partially reclaimed, two miles of streets have been laid out, graded and paved, two and one-half miles of concrete sidewalks,



EASTERN HARBOR TERMINALS IN TORONTO

Devoted to heavy and light manufacturing on territory reclaimed from marshy tracts since 1912

watermains and sewers have been constructed and five miles of railway sidings laid. Twenty-four industries have been located in the district and are now in operation. An electrically operated Bascule Bridge spans the Keating Channel at Cherry Street, the present main traffic entrance to the district.

The Central Harbor Terminals extend across the entire front of the inner harbor and will contain, when completed, about 300 acres of land. The development of this section comprises the reclamation of all the land lying between the present shore

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line and the new harbor head line; along this latter line wharves with slips six hundred feet long and two hundred feet wide are to be constructed at frequent intervals. These docks, now under construction, will provide a present navigable depth of twenty-four feet.

A street 86 feet wide, to be known as Fleet Street, is to be constructed across the whole inner harbor front; south of this, a strip 110 feet wide will be available for storage warehouses and light manufacturing; south of this again is an allowance for the Commissioners' own tracks and for elevated rapid transit railway,



A SCENE AT CANADIAN NATIONAL EXHIBITION

In 1919 there were nearly 1,250,000 paid admissions.

and still further south another series of warehouse sites fronting on the Queen's Quay, a 66 foot street adjoining the bulkhead line.

The end of 1920 will see the completion of three miles of docks in this section and a very large portion of the land to the north of it will have been reclaimed. Three industries are at present located in this area and are served by sidings; streets, sewers and watermains are now under construction.

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All railway sidings connect with the three transcontinental lines operating into Toronto; they will be controlled by the Harbor Commissioners and will be absolutely free of any inter-switching charges.

At the west end of the city lake front between Sunnyside and the Humber River, 123 acres of land have been reclaimed which will be laid out for residential hotels, bathing pavilions, restaurants and dancing pavilions, wading pools, tennis courts, bowling greens, and amusement resorts; a boardwalk, 24 feet in width is being built along the Lake Shore and an outside breakwater is being constructed at a distance of 300 feet from and paralleling the new shore line; the latter will extend from the Humber River to the western entrance to the harbor, a distance of about four miles, and in addition to affording protection from the depredations of storms, will provide a protected waterway for canoes and other small craft as well as bathers.

A boulevard driveway is now being built from the westerly limits of the city at Humber River to Sunnyside; it will be continued eastward along the lake front, passing through Exhibition Park, crossing the western channel by means of a moveable bridge, through a park system the length of Toronto Island, by means of picturesque bridges of reinforced concrete, to the eastern entrance of the Harbor; this will be crossed by a bridge similar to that at the western entrance, thence the Boulevard is to be continued easterly paralleling the lake shore, through "Simcoe Park," to Woodbine Avenue, where it will connect with a similar boulevard circling the city.

RECREATION

Tourists make Toronto the gateway to nature's wonderland, the Muskoka Lakes, and the Highlands of Ontario. Passenger boats ply between Toronto, Niagara, Lewiston, Queenston and Port Dalhousie, making access to the attractions of the larger lakes and their many islands easy and pleasant. Many famous oarsmen acquired their skill under the auspices of organizations for the promotion of sport on the lake waters. Many other sports including tennis, lawn bowling, cricket, football, curling, hockey, golf, rowing, baseball, have their respective devotees in large numbers. Tourists aver that Toronto has its own attractions in spacious parks, miles of well paved boulevards and attractive homes. Its many advantages no doubt justifies fully its title, "The Queen City," popularly given to it.



SOUTH FRONT OF HART HOUSE, UNIVERSITY OF TORONTO
Where delegates to the Congress of Chambers of Commerce of the British Empire were entertained.

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Appendices

I

PROGRESS OF CANADA IN WAR TIME

	1913.	1919.	Per cent. Increase.
Population (estimated).....	7,530,000	8,835,102	17.33
*Immigration.....	402,432	57,702	-85.66
†Field Crops.			
Total area.....acres	35,375,430	53,049,640	49.96
Total value.....	\$552,771,500	\$1,452,437,500	162.75
*Fisheries.....	\$33,389,464	\$58,000,000	73.70
†Forest Products.			
Lumber, Lath, Shingles, Pulpwood.....	\$77,887,730	\$131,668,122	69.04
†Live Stock.....No.	15,098,986	21,213,408	40.49
Horses, cattle, sheep and swine.....	\$659,308,222	\$1,296,602,000	96.66
†Minerals.....	\$145,634,812	||\$173,075,913	18.84
*Trade.			
Exports**.....	\$377,068,355	\$1,216,443,806	222.60
Imports††.....	\$670,089,066	\$916,429,335	36.76
†Chartered Banks.			
Assets.....	\$1,530,093,671	\$2,754,568,118	80.02
Deposits.....	\$1,126,871,523	\$2,189,428,885	94.29
Clearings.....	\$9,252,202,889	\$16,680,895,978	80.29
†Steam Railways.			
Miles in operation....No.	29,304	38,896	32.73
Capital.....	\$1,531,830,692	\$2,009,209,510	31.16
Passengers.....No.	46,230,765	78,371,716	69.52
Freight.....tons	106,992,710	116,699,572	9.07
†Electric Railways.			
Miles in operation....No.	1,357	1,696	24.98
Capital.....	\$141,235,631	\$171,894,556	21.70
Passenger.....No.	597,863,801	686,124,263	14.76
Freight.....tons	1,957,930	\$2,497,530	27.55
†Insurance.			
Fire.....amount at risk	\$3,151,930,389	\$5,524,055,942	75.25
Life.....amount at risk	\$1,168,590,027	\$2,024,187,463	73.21
	1915.	1917.	
†Manufacturers.			
Products.....	\$1,407,137,140	\$3,015,577,940	114.30
Capital invested.....	1,994,103,272	2,786,649,727	39.74
Employees.....No.	514,883	692,067	34.41

*Fiscal Year ended March 31st.

†Calendar Years.

§1918 figure, latest available.

||Subject to revision.

**Exports of Canadian merchandise.

††Imports of merchandise for home consumption.

‡Year ended June 30th.

II

EXPERIENCE OF INSURANCE COMPANIES

The experience of the various classes of companies for each decade of the half-century is shown by the following figures:—

CANADIAN COMPANIES						
Period.	Cash premiums.	Premiums earned.	Losses incurred.	Expenses incurred.	Under-writing profit.	Rate of profit, per cent. cash premiums
	\$	\$	\$	\$	\$	%
1869-78.....	11,152,050	10,667,180	8,604,657	3,735,956	—1,673,433	—15.01
1879-88.....	11,233,998	11,003,893	7,795,919	3,447,673	—239,673	—2.13
1889-98.....	11,356,824	11,361,984	7,575,359	3,727,472	59,153	.52
1899-1908.....	24,923,206	23,203,599	14,819,790	8,794,116	—410,307	—1.65
1909-18.....	47,735,334	46,379,790	26,448,748	18,556,656	1,374,386	2.88
Totals.....	106,401,412	102,616,446	65,244,473	38,261,873	889,900	—0.84

BRITISH COMPANIES						
Period.	Cash premiums.	Premiums earned.	Losses incurred.	Expenses incurred.	Under-writing profit.	Rate of profit, per cent. cash premiums
	\$	\$	\$	\$	\$	%
1869-78.....	15,889,898	15,432,391	14,966,067	3,256,904	—2,790,580	—17.56
1879-88.....	30,218,934	28,994,591	18,550,093	7,362,210	3,082,288	10.20
1889-98.....	46,058,237	44,898,325	29,977,012	13,153,474	1,767,839	3.84
1899-1908.....	77,125,320	74,203,386	47,960,293	22,052,308	4,190,785	5.43
1909-18.....	132,991,741	127,960,647	71,563,595	43,567,578	12,829,474	9.65
Totals.....	302,284,130	291,489,340	183,017,060	89,392,474	19,079,806	6.31

FOREIGN COMPANIES						
Period.	Cash premiums.	Premiums earned.	Losses incurred.	Expenses incurred.	Under-writing profit.	Rate of profit, per cent. cash premiums
	\$	\$	\$	\$	\$	%
1869-78.....	2,536,720	2,490,602	2,166,905	381,473	—57,776	—2.28
1879-88.....	3,382,384	3,227,553	1,932,063	734,274	561,216	16.59
1889-98.....	8,722,057	8,381,866	5,854,634	2,601,525	—74,293	—0.85
1899-1908.....	21,091,374	19,896,574	12,167,881	5,817,816	1,910,877	9.06
1909-18.....	73,522,420	69,175,929	40,518,793	32,320,362	5,336,774	7.26
Totals.....	109,254,955	103,172,524	62,640,276	32,855,450	7,676,798	7.03
Grand Totals...	517,940,497	497,278,310	310,901,809	160,509,797	25,866,704	4.99

(The revised experience for the year 1919 was not available at time of going to press.)

The foregoing figures deal only with companies licensed by the Dominion Department of Insurance. There are in addition operating in one or more provinces of Canada companies incorporated by the provincial legislatures. The business of these companies amounts to about one per cent. of the total life insurance and about ten per cent. of the total fire insurance for the Dominion.

III

AREA AND POPULATION

Provinces and Districts.	Land Sq. Miles.	Water Sq. Miles.	Total Sq. Miles.	Population 1911.	Population per Sq. M. 1911.	Estim. Pop. 1919.
Alberta.....	252,925	2,360	255,285	374,663	1.47	587,770
British Columbia.....	353,416	2,439	355,855	392,480	1.09	718,660
Manitoba.....	231,926	19,906	251,832	455,614	6.18	618,903
New Brunswick.....	27,911	74	27,985	351,889	12.61	368,760
Nova Scotia.....	21,068	360	21,428	492,338	22.98	518,761
Ontario.....	365,880	41,382	407,262	2,523,274	9.67	2,820,909
Prince Edward Island..	2,184	—	2,184	93,728	42.91	93,728
Quebec.....	690,865	15,969	706,834	2,003,232	5.69	2,326,528
Saskatchewan.....	243,382	8,318	251,700	492,432	1.95	754,090
North-west Territories.	1,207,926	34,298	1,242,224	18,481	.009	18,481
Yukon.....	206,427	649	207,076	8,512	.041	8,512
Canada—Total.....	3,603,910	125,755	3,729,665	7,206,643	1.93	8,835,102

IV

SCHOOL POPULATION

PRINCE EDWARD ISLAND
(Year ended June 30.)

Year	Elementary Schools	Teachers	Pupils Enrolled	Average attendance of pupils	
				No.	Per cent.
1901.....	474	589	20,779	12,330	59.34
1910.....	478	591	17,932	11,632	64.86
1914.....	474	588	18,069	11,170	61.81
1919.....	466	594	17,587	10,980	62.43

NOVA SCOTIA
(Year ended July 31.)

1901.....	2,387	2,492	98,410	53,643	54.5
1910.....	2,579	2,723	102,035	65,630	64.3
1914.....	2,724	2,892	106,351	66,599	62.6
1919.....	2,812	3,012	106,982	65,906	61.6

NEW BRUNSWICK
(Year ended June 30.)

1901.....	1,741	1,841	60,420	37,717	62.42
1910.....	1,860	1,974	62,994	39,822	63.21
1914.....	1,922	2,032	64,310	40,882	63.57
1919.....	2,092	2,211	71,029	46,465	65.41

QUEBEC
(Year ended June 30.)

1901.....	5,245	6,096	201,124	138,787	69.01
1910.....	5,720	6,901	218,914	162,928	74.42
1914.....	5,947	7,755	244,607	185,102	75.67
1918†.....	6,103	8,189	247,531	188,319	76.08

ONTARIO
(Year ended Dec. 31.)

1901.....	6,035	9,221	458,606	262,010	57.13
1910.....	6,408	10,518	459,145	279,358	60.84
1914.....	6,550	11,546	493,838	319,337	64.66
1919.....	6,735	13,459	546,562	357,997	65.49

MANITOBA
(Year ended June 30.)

1901*.....	1,416	1,669	51,888	27,550	53.1
1910*.....	2,227	2,774	76,247	43,885	57.6
1914.....	2,688	2,864	93,954	58,778	62.6
1919.....	3,256	†3,097	114,662	72,072	62.8

SASKATCHEWAN
(Year ended Dec. 31.)

1906§.....	873	1,296	31,275	15,770	50.42
1910.....	1,912	2,672	63,964	33,731	52.73
1914.....	3,055	4,501	111,059	63,328	57.02
1919.....	4,310	†6,222	†151,326	†91,010	†60.14

Both elementary and secondary schools or grades included in figures for Prince Edward Island, Nova Scotia, New Brunswick, Manitoba, Saskatchewan, Alberta and British Columbia.

†1918 returns—1919 figures not available.

*Year ended Dec. 31st.

§Provinces of Saskatchewan and Alberta formed in 1905.

IV—Continued

SCHOOL POPULATION

ALBERTA
(Year ended Dec. 31.)

Year	Elementary Schools	Teachers	Pupils Enrolled	Average attendance of pupils	
				No.	Per cent.
1906§	570	924	28,784	14,782	51.34
1910	1,195	2,217	55,307	29,601	53.52
1914	2,027	3,978	89,910	54,582	60.71
1919	2,830	4,900	120,000	74,400	62.00

BRITISH COLUMBIA
(Year ended June 30.)

1901	313	528	23,031	14,962	64.96
1910	476	958	37,629	26,874	71.42
1914	682	1,733	58,950	46,555	78.97
1919	799	2,135	66,200	52,047	78.62

SUMMARY FOR CANADA.

1901†	17,611	22,436	914,258	546,999	59.83
1910	22,855	31,328	1,094,167	693,471	63.38
1914	26,069	37,889	1,281,048	852,333	66.53
1919°	29,403	43,819	1,441,879	959,196	66.52

Both elementary and secondary schools or grades included in figures for Prince Edward Island, Nova Scotia, New Brunswick, Manitoba, Saskatchewan, Alberta and British Columbia.

§Provinces of Saskatchewan and Alberta formed in 1905.

†Summary for seven provinces only, as two provinces of Saskatchewan and Alberta were not formed until 1905.

°Includes 1918 figures for Quebec and part for Manitoba and Saskatchewan. 1919 returns not available.

V

CUSTOMS REVENUE

Fiscal Year Ended March 31st.

	*1900.	1910.	1914.	1920.
St. John.....	\$ 897,659	\$ 1,333,703	\$ 1,668,664	\$ 5,308,914
Halifax.....	1,252,067	1,627,602	2,222,171	3,504,205
Quebec.....	961,937	1,532,766	2,176,822	3,053,788
Montreal.....	9,136,377	16,325,229	24,732,198	47,921,847
Toronto.....	5,363,816	12,325,465	19,924,464	42,949,764
Fort William...	132,615	588,105	1,890,319	874,332
Hamilton.....	829,446	1,815,748	3,410,242	6,114,469
London.....	677,336	928,314	1,318,484	1,896,481
Ottawa.....	662,165	1,129,683	1,855,575	2,632,206
Port Arthur....	53,207	447,794	1,043,465	444,810
Windsor.....	367,614	1,084,075	3,753,650	10,663,617
Winnipeg.....	1,212,542	4,999,238	9,202,391	11,565,329
Calgary.....	86,182	697,745	2,209,616	1,847,582
Edmonton.....		286,603	1,780,360	1,292,956
Vancouver.....	841,253	3,657,242	7,470,044	9,202,940
Victoria.....	805,113	1,240,612	2,016,683	1,181,901

*Fiscal Year ended June 30th.

VI

SUMMARY OF IMPORTS AND EXPORTS

IMPORTS

	Fiscal Year Ending 31st March.		
	1914.	1919.	1920.
Imports for Consumption.			
Dutiable Goods.....	\$410,258,744	\$526,481,620	\$693,643,211
Free Goods.....	208,198,400	389,947,715	370,872,958
Total Imports (Mdse.)...	618,457,144	916,429,335	1,064,516,169
Duty Collected.....	107,180,578	*158,046,334	*187,520,613
Average ad valorem rate of duty:	{ Dutiable 26.1% Total 17.3%	30.0% 17.2%	27.0% 17.6%

*Includes "War Tax" of \$44,726,092 in 1919 and \$31,369,297 in 1920.

EXPORTS

Canadian Produce			
The Mine.....	\$59,039,054	\$77,514,508	
The Fisheries.....	20,623,560	37,137,072	
The Forest.....	42,792,137	70,551,901	
Animal Produce.....	53,349,119	198,598,437	‡
Agricultural Products.	198,220,029	271,110,210	
Manufactures.....	57,443,452	555,429,130	
Miscellaneous.....	121,088	6,102,548	
Total Canadian Produce...	\$431,588,439	\$1,216,443,806	\$1,239,492,098
Foreign Produce.....	23,848,785	52,321,479	47,166,611
Total Exports (Mdse.)...	\$455,437,224	\$1,268,765,285	\$1,286,658,709
Aggregate Trade (exclusive Coin and Bullion).....	\$1,073,894,368	\$2,185,194,620	\$2,351,174,878

‡Export statistics not compiled on this basis subsequent to March 31, 1919.

VII

TRADE WITH BRITISH EMPIRE AND FOREIGN COUNTRIES

Countries	Fiscal Year Ending 31st March.			
	1914.		1920.	
	Imports for Consumption.	Exports of Canadian Produce.	Imports for Consumption.	Exports of Canadian Produce.
<i>British Empire.</i>				
United Kingdom.....	\$132,070,362	\$215,253,969	\$126,269,274	\$489,151,806
Australia.....	713,111	4,673,997	1,369,218	11,415,623
Bermuda.....	7,539	383,151	55,604	1,249,020
British South Africa.....	522,916	3,927,384	695,553	8,649,756
British East Indies.....	7,218,987	686,324	16,235,738	6,762,250
British Guiana.....	3,179,112	649,675	7,412,931	3,109,381
British Honduras.....	155,396	9,298	302,043	29,350
British West Indies.....	4,347,310	4,469,329	12,093,144	10,869,263
Fiji.....	240,719	118,441	714,306	124,005
Hong Kong.....	1,010,021	1,879,261	3,194,959	1,343,867
Newfoundland.....	1,840,523	4,508,090	2,139,614	16,175,443
New Zealand.....	3,192,900	1,933,698	3,494,600	6,987,008
Other British Colonies.....	27,906	149,900	195,369	5,920,378
Total British Empire.....	\$154,526,802	\$238,642,517	\$174,172,353	\$561,787,159
<i>Foreign Countries.</i>				
Argentina Republic.....	\$2,603,128	\$2,134,522	\$3,385,285	\$6,126,457
Austria-Hungary.....	1,773,021	368,425	49,723	33,168
Belgium.....	4,490,476	4,269,394	911,407	28,463,855
Brazil.....	1,163,785	767,858	1,973,768	2,703,488
Central American States.....	163,483	113,482	343,200	181,351
Chile.....	767,289	134,457	240	896,960
China.....	913,262	473,074	1,201,579	6,659,805
Cuba.....	3,952,887	1,815,414	17,585,528	6,329,783
Denmark.....	377,677	652,765	105,310	2,938,026
Dutch East Indies.....	976,090	20,366	3,481,400	1,492,775
France.....	14,276,535	3,632,444	10,604,357	61,106,938
Germany.....	14,586,223	4,044,019	44,255	610,528
Greece.....	445,036	11,934	700,899	29,588,984
Italy.....	2,090,387	514,660	999,040	16,961,312
Japan.....	2,604,216	1,587,467	13,635,680	7,732,514
Mexico.....	1,471,182	51,747	2,648,915	410,825
Netherlands.....	3,015,456	3,985,987	2,222,434	5,653,218
Norway.....	486,379	845,331	461,848	4,798,299
Peru.....	748,546	11,817	5,072,408	273,967
Portugal.....	277,381	55,481	312,633	197,385
Roumania.....	4,556	69,800	..	12,953,605
Russia.....	482,809	1,368,939	14,496	1,492,041
San Domingo.....	2,942,333	59,721	10,675,287	169,186
Spain.....	1,352,133	63,995	1,540,548	1,096,053
Sweden.....	603,401	177,313	360,353	4,449,105
Switzerland.....	4,314,805	21,439	7,758,051	1,484,416
Turkey-in-Asia and Europe.....	494,981	469,378	233,478	2,336,717
United States.....	395,565,328	163,372,825	\$01,702,720	464,029,014
Uruguay.....	55,726	90,615	322,086	689,538
Venezuela.....	133,243	139,264	299,240	404,007
Other Foreign Countries.....	798,588	1,621,989	1,697,648	5,441,619
Totals, Foreign Countries.....	463,930,342	192,945,922	890,343,816	677,704,939
	\$618,457,144	\$431,588,439	\$1,064,516,169	\$1,239,492,098
Total Trade of Canada*....	\$1,050,045,583		\$2,304,008,267	

*Excluding Coin and Bullion and exports Foreign Produce.

VIII

PRINCIPAL ARTICLES IMPORTED INTO CANADA FOR
CONSUMPTION

	Year ending March 31st. 1914	1920
Animals, living.....	\$2,514,726	\$2,568,307
Articles for army and navy.....	372	1,679,079
Asphaltum and asphalt.....	833,622	446,587
Books and printed matter.....	6,754,369	11,240,814
Breadstuffs.....	9,425,512	26,519,958
Bricks, clays and tiles.....	3,268,147	2,470,812
Butter.....	1,823,994	176,994
Buttons and materials.....	871,181	*
Cheese.....	299,223	206,500
Clocks and watches.....	2,253,643	3,126,267
Coal—Anthracite.....	20,734,126	32,647,759
Bituminous.....	21,840,731	27,424,870
Cocoa and chocolate.....	2,732,046	7,626,745
Coffee.....	2,402,218	5,077,103
Cordage and twine.....	4,446,990	*
Cotton.....	37,601,310	89,367,984
Curtains and shams.....	594,841	474,779
Drugs, dyes, chemicals, etc.....	14,638,289	*
Earthenware and china ware.....	3,131,305	3,511,447
Eggs.....	2,630,364	2,837,442
Electric Apparatus.....	8,924,314	*
Fancy Goods.....	4,879,431	*
Fish.....	2,172,900	3,491,579
Flax, hemp, jute.....	8,963,057	15,943,245
Furs.....	3,754,626	12,511,205
Gloves and mitts.....	2,722,130	*
Grasses and fibres.....	1,699,391	*
Gutta-percha and rubber.....	8,994,473	*
Hats and caps.....	5,452,457	*
Hides and skins.....	8,831,010	23,020,976
Jewellery.....	1,755,131	1,242,010
Lard.....	648,864	2,220,413
Leather.....	8,454,176	17,102,702
Meats.....	5,267,853	22,100,333
Metals—Brass.....	4,415,202	4,565,756
Copper.....	6,581,485	8,568,035
Gold and silver.....	969,182	704,938
Iron and steel.....	119,385,821	149,846,502
Lead.....	943,336	937,312
Tin.....	5,504,104	11,419,016
Zinc.....	919,418	835,596
Other metals.....	9,728,902	*
Musical Instruments.....	2,154,737	4,329,093
Oils.....	17,095,226	*
Lubricating.....	\$ 1,089,478	1,796,800
Mineral.....	12,036,436	22,837,806
Paints, colours and varnish.....	2,327,995	4,121,681
Paper.....	8,043,368	9,970,656

*Not compiled on same basis, owing to change of classification.

VIII—Continued

PRINCIPAL ARTICLES IMPORTED INTO CANADA FOR
CONSUMPTION

	Year ending March 31st.	
	1914	1920
Pickles and sauces.....	\$ 748,790	\$ 619,630
Ribbons.....	1,807,109	2,899,429
Seeds.....	1,671,000	4,208,845
Settlers' effects.....	14,348,441	10,181,034
Silk.....	9,689,305	34,432,789
Soap.....	1,323,010	1,534,082
Spirits and wines.....	7,046,948	*
Stone, marble and slate.....	2,843,494	3,277,420
Sugar and molasses.....	17,949,396	73,618,354
Tea.....	6,649,716	8,336,163
Tobacco.....	6,899,218	14,673,550
Tobacco pipes, etc.....	869,802	1,000,023
Vegetables.....	3,306,930	5,602,017
Vehicles.....	20,097,851	32,655,350
Vessels.....	1,091,115	6,166,391
Wood.....	24,613,850	22,431,670
Wool.....	31,438,223	63,493,535
All other articles.....	76,677,348	*
Total Imports†.....	<u>\$618,457,144</u>	<u>\$1,064,516,169</u>

*Not compiled on same basis, owing to change of classification.

†Excluding coin and bullion.

IX

PRINCIPAL ARTICLES OF CANADIAN PRODUCE EXPORTED FROM
CANADA

		Fiscal years ending March 31st.	
		1914.	1920.
Animals, living.....	value	\$9,455,083	\$50,026,158
Butter.....	lbs.	1,228,753	17,612,605
	value	\$309,046	\$9,844,359
Cheese.....	lbs.	144,478,340	126,395,777
	value	\$18,868,785	\$36,336,863
Clothing.....	value	\$446,524	\$8,928,906
Coal.....	tons	1,498,820	2,120,138
	value	\$3,703,765	\$13,183,666
Cartridges.....	"	\$13,353	\$7,366,733
Other Explosives.....	"	\$228,312	\$4,675,047
Fish.....	"	\$20,130,605	\$40,687,172
Furs.....	"	\$5,667,749	\$20,921,971
Grain—Oats.....	bush.	34,996,664	10,768,872
	value	\$13,379,849	\$9,349,455
Wheat.....	bush.	120,426,579	77,978,037
	value	\$117,719,217	\$185,044,806
Other grain.....	bush.	13,506,137	17,128,122
	value	\$7,030,095	\$25,511,421
Gutta-percha and rubber.....	"	\$686,231	\$10,203,989
Hides and skins.....	"	\$9,262,972	\$19,762,646
Leather.....	"	\$3,213,941	\$18,057,152

IX—Continued

PRINCIPAL ARTICLES OF CANADIAN PRODUCE EXPORTED
FROM CANADA

		Fiscal years ending March 31st.	
		1914	1920
Meats—Bacon and hams.....	lbs.	25,749,936	223,642,600
	value	\$4,033,106	\$70,123,580
Beef.....	lbs.	13,133,205	110,047,800
	value	\$1,127,908	\$19,637,656
Canned Meats.....	lbs.	638,583	2,812,706
	value	\$94,961	\$1,102,842
Pork.....	lbs.	1,811,204	6,682,300
	value	\$202,391	\$1,641,570
Other Meats.....	"	\$356,486	\$3,655,586
Metals—Aluminum, ingots, etc.....	cwts.	130,845	192,069
	value	\$1,885,074	\$5,680,871
Asbestos.....	tons	105,971	129,202
	value	\$2,891,669	\$8,767,856
Brass, old and scrap.....	cwts.	40,204	91,512
	value	\$371,549	\$1,217,940
Copper.....	"	\$9,866,741	\$13,879,332
Gold.....	"	\$13,326,755	\$5,974,334
Iron and steel.....	"	\$11,374,981	\$61,912,659
Nickel.....	cwts.	505,805	441,407
	value	\$5,374,738	\$9,039,221
Silver.....	ozs.	36,758,276	12,379,642
	value	\$20,971,538	\$14,255,601
Other Metals.....	"	\$2,719,860	*
Milk and Cream.....	"	\$2,004,266	\$10,216,861
Paper—Printing.....	cwts.	5,851,579	14,272,513
	value	\$11,386,845	\$53,203,792
Other paper.....	"	\$1,300,051	\$10,049,627
Seeds—Flax.....	bush.	20,647,327	1,127,986
	value	\$24,816,333	\$5,395,675
Textiles.....	"	\$1,702,257	\$22,063,620
Vegetables.....	"	\$1,578,257	\$11,656,483
Vehicles—Autos.....	No.	6,306	24,506
	value	\$3,571,862	\$14,883,607
Auto parts.....	"	\$235,857	\$3,097,466
Other vehicles.....	"	\$206,854	\$2,879,425
Wheat flour.....	brls.	4,832,183	8,863,068
	value	\$20,581,079	\$94,262,928
Wood—Planks, boards.....	M ft.	1,574,204	2,085,262
	value	\$29,047,752	\$75,216,193
Other wood, unmanufactured..	"	\$13,695,523	\$30,120,575
Wood pulp.....	cwts.	6,331,803	15,389,582
	value	\$6,364,824	\$41,383,482
Other wood, manufactured....	"	\$880,387	\$3,449,576
All other articles.....	"	29,503,008	*
Total exports†.....		<u>\$431,588,439</u>	<u>\$1,239,492,098</u>

*Not compiled on same basis, owing to change of classification.

†Excluding coin and bullion and exports Foreign Produce.

X

EXPORTS OF WHEAT (DOMESTIC)

	Fiscal Year Ended March 31st.			
	1900.	1910.	1914.	1920.
<i>To British Empire.</i>	Bush.	Bush.	Bush.	Bush.
United Kingdom.....	15,975,858	46,589,228	108,574,397	51,426,131
Australia.....	7	.....	20	2
British Africa.....	.....	105,471	162,079	.....
Other British Possessions	6	35	11,013	1,659,903
Total British Empire....	15,975,871	46,694,734	108,747,509	53,086,036
<i>To Foreign Countries.</i>				
Belgium.....	438,046	547,346	1,658,861	4,198,288
France.....	143,692	223,309	435,773	5,045,000
Germany.....	92,839	72,000	297,565	.....
Greece.....	.....	.....	.....	5,698,533
Italy.....	100,298	.....	.....	2,757,174
United States.....	82,785	1,856,181	7,522,027	6,661,588
Other Foreign Countries.	11,119	347,780	1,764,844*	531,418
Total Foreign Countries.	868,779	3,046,616	11,679,070	24,892,001
Total Wheat Exports...	16,844,650	49,741,350	120,426,579	77,978,037

*516,404 bush. to Japan and 1,202,118 bush. to Netherlands.

XI

EXPORTS OF WHEAT FLOUR

	Fiscal Year Ended March 31st.			
	1900.	1910.	1914.	1920.
<i>To British Empire.</i>	*Bush.	*Bush.	*Bush.	*Bush.
United Kingdom.....	2,009,915	8,292,009	12,343,068	25,726,249
Australia.....	174,723	4,380	221	.....
British Africa.....	138,925	1,034,644	1,132,526	7,133
British Guiana.....	4,903	157,096	357,715	589,249
British West Indies.....	55,805	837,775	2,176,033	2,308,945
Newfoundland.....	964,291	1,385,023	1,266,757	1,687,401
Other British Possessions	9	194,143	899,021	145,715
Total British Empire....	3,348,581	11,905,070	18,175,341	30,464,692
<i>To Foreign Countries.</i>				
Belgium.....	18	504	4,638	109,966
France.....	2,275	1,325	6,183	2,330,578
Germany.....	4,417	23,143	127,543	.....
Greece.....	.....	.....	.....	3,318,193
Italy.....	.....	.....	1,237	251,853
Netherlands.....	.....	117,452	397,690	583,994
Russia.....	.....	28,439	126,158	280,745
United States.....	16,934	557,185	85,842	131,449
Other Foreign Countries.	20,483	899,675	2,417,507†	1,673,731
Total Foreign Countries.	44,127	1,627,723	3,166,798	8,680,509
Total Flour Exports...	3,392,708	13,532,793	21,342,139	39,145,201

*Computed on basis of 4 bushels and 25 lbs. to a barrel.

†461,347 bush. to Denmark, 747,446 bush. to Norway, 506,718 bush. to Turkey.

XII

SUMMARY OF EXPORTS—WHEAT AND WHEAT FLOUR

	Fiscal Year Ending March 31st.			
<i>To British Empire.</i>	1900.	1910.	1914.	1920.
Wheat.....bush.	15,975,871	46,694,734	108,747,509	53,086,036
Flour.....bush.	3,348,581	11,905,070	18,175,341	30,464,692
§Flour.....bbls.	758,171	2,695,487	4,115,172	6,897,666
Total British Empire..	<u>19,324,452</u>	<u>58,599,804</u>	<u>126,922,850</u>	<u>83,550,728</u>
<i>To Foreign Countries.</i>				
Wheat.....bush.	868,779	3,046,616	11,679,070	24,892,001
Flour.....bush.	44,127	1,627,723	3,166,798	8,680,509
§Flour.....bbls.	9,991	368,541	717,011	1,965,402
Total Foreign Countries	<u>912,906</u>	<u>4,674,339</u>	<u>14,845,868</u>	<u>33,572,510</u>
Total Exports				
Wheat & Flour..bush.	20,237,358	63,274,143	141,768,718	117,123,238
§Flour.....bbls.	768,162	3,064,028	4,832,183	8,863,068

§Basis of 4 bushels and 25 lbs. to a barrel used in converting flour into bushels as shown.

XIII

EXPORTS OF LIVE CATTLE

1890 TO 1919, INCLUSIVE

	Great Britain No.	United States No.	Other Countries No.	Total No.
1890.....	66,965	7,840	6,649	81,454
1891.....	107,689	2,763	7,309	117,761
1892.....	101,426	551	5,202	107,179
1893.....	99,904	402	6,918	107,224
1894.....	80,531	256	5,270	86,057
1895.....	85,863	882	7,057	93,802
1896.....	97,042	1,646	5,763	104,451
1897.....	120,063	35,998	5,308	161,369
1898.....	122,106	87,905	2,999	213,010
1899.....	115,476	92,834	3,537	211,847
1900.....	115,056	86,989	3,479	205,524
1901.....	119,050	46,244	3,985	169,279
1902.....	148,927	31,743	3,803	184,473
1903.....	161,170	10,432	5,178	176,780
1904.....	148,301	3,517	5,599	157,417
1905.....	159,078	3,696	4,328	167,102
1906.....	163,994	4,726	7,310	176,030
1907.....	149,340	8,184	4,617	162,141
1908.....	124,015	23,612	3,366	150,993
1909.....	143,661	16,130	3,154	162,945
1910.....	140,424	12,210	4,752	157,386
1911.....	113,795	7,576	3,552	124,923
1912.....	47,868	9,807	3,842	61,517
1913.....	12,069	28,268	3,959	44,296
1914.....	9,788	206,446	3,615	219,849
1915.....	.....	183,672	2,252	185,924
1916.....	1,752	227,202	12,581	241,535
1917.....	.....	164,169	1,967	166,136
1918.....	.....	189,229	2,130	191,359
1919.....	.....	308,562	2,934	311,496

XIV

EXPORTS OF PRODUCE

	Fiscal Year Ending March 31st.		
	1913.	1918.	1919.
	lbs.	lbs.	lbs.
Bacon.....	36,214,690	200,117,178	120,622,092
Beef.....	1,940,077	89,176,023	127,810,294
Hams.....	2,476,654	7,935,289	4,066,649
Mutton.....	45,994	856,141	1,933,308
Pork.....	780,306	8,004,604	37,318,106
Wool.....	978,406	11,167,158	4,881,839
Lard.....	50,365	1,957,401	2,640,658
Butter.....	979,047	5,037,512	13,659,157
Cheese.....	155,300,379	169,626,252	152,207,037
Canned Meats.....	277,929	13,422,624	14,140,717
Eggs (dozen).....	147,419	4,896,793	733,445
	No.	No.	No.
Cattle.....	44,338	191,359	311,496
Horses.....	3,829	16,468	10,457
Sheep.....	13,363	134,87	120,131
Swine.....	654	15,647	32,053
Poultry (value).....	\$97,082	\$302,804	\$383,526

XV

CHARTERED BANKS OF CANADA.

	Fiscal Year Ending March 31st.	
	1913.	1920.
Capital Paid up.....	\$ 116,316,456	\$ 119,252,969
Rest or Reserve Fund.....	107,903,491	124,925,000
Notes in Circulation.....	102,202,047	225,769,628
Deposits, total.....	988,191,367	1,855,131,598
Discounts to the people.....	963,421,411	1,527,078,232
Assets, total.....	1,514,512,523	3,061,826,474
Liabilities, total.....	1,272,238,689	2,789,254,730
*Clearings.....	9,252,202,889	16,680,895,978

On December 31, 1919, there were 4,481 branches of Canadian Banks, of which 155 were located outside of Canada.

*Calendar Years 1913 and 1919.

XVI

SAVINGS BANKS

DEPOSITS:—

	1913	1920
P.O. Savings Banks.....	\$42,728,942	\$31,238,912
Other Government Savings Banks.....	14,411,541	10,453,853
Other Savings Banks.....	40,133,551	53,118,053
Loan Companies and Building Societies.....	32,681,806	47,000,000
Total.....	<u>\$129,955,840</u>	<u>\$141,810,818</u>

XVII

AREA, YIELD AND VALUE OF FIELD CROPS

Crops.	Area. Acres.	Yield per Acre. Bush.	Total Yield. Bush.	Weight per measured Average Bushel. Lb.	Price.	Total Value.
Wheat.....	1910	8,863,151	14.89	132,048,782	59.77	\$0.75 \$ 99,530,000
	1911	11,100,673	20.80	230,924,000	59.42	0.64 148,123,000
	1912	10,996,700	20.38	224,159,000	59.20	0.62 139,090,000
	1913	11,015,000	21.04	231,717,000	60.36	0.67 156,462,000
	1914	10,293,900	15.67	161,280,000	59.49	1.22 196,418,000
	1915	15,109,415	26.05	393,542,600	60.19	0.91 356,816,900
	1916	15,369,709	17.10	262,781,000	57.10	1.31 344,096,400
	1917	14,755,850	15.75	233,742,850	59.46	1.94 453,038,600
	1918	17,353,902	11.00	189,075,350	59.44	2.02 381,677,700
	1919	19,125,968	10.00	193,260,400	59.12	1.89 364,857,000
Average.....	1910-19	13,398,427	17.27	225,253,098	59.36	1.20 354,010,960
"	1915-19	16,342,969	15.98	254,440,440	59.06	1.61 360,097,320
Oats.....	1915	11,555,681	40.24	464,954,400	36.61	\$0.36 \$171,009,100
	1916	10,996,487	37.30	410,211,000	33.86	0.51 210,957,500
	1917	13,313,400	30.25	403,009,800	33.55	0.69 277,065,300
	1918	14,790,336	28.75	426,312,500	35.61	0.78 331,357,400
	1919	14,952,114	26.25	394,387,000	34.16	0.80 317,097,000
Average.....	1915-19	13,121,603	32.56	419,774,940	34.76	0.63 261,497,260
Barley.....	1915	1,718,432	31.51	54,017,100	48.26	\$0.52 \$27,985,800
	1916	1,802,996	23.72	42,770,000	45.66	0.82 35,024,000
	1917	2,392,200	23.00	55,057,750	46.97	1.08 59,654,400
	1918	3,153,711	24.50	77,287,240	47.24	1.00 77,378,670
	1919	2,645,509	21.25	56,389,400	46.32	1.37 77,462,700
Average.....	1915-19	2,342,570	24.80	57,104,298	46.89	0.96 55,501,114
Rye.....	1915	121,677	20.43	2,486,200	56.32	0.77 \$ 1,921,900
	1916	148,404	19.38	2,876,400	54.95	1.11 3,196,000
	1917	211,880	18.25	3,857,200	53.44	1.62 6,267,200
	1918	555,294	15.25	8,504,400	55.60	1.49 12,728,600
	1919	753,081	13.50	10,207,400	55.09	1.40 14,240,000
Average.....	1915-19	358,067	17.36	5,586,320	55.08	1.28 7,670,740
Peas.....	1915	196,065	17.67	3,464,250	60.74	\$1.65 \$ 5,724,100
	1916	151,790	14.50	2,215,100	59.88	2.22 4,919,000
	1917	198,881	15.25	3,026,340	59.81	3.54 10,724,100
	1918	235,976	18.25	4,313,400	59.93	2.99 12,899,100
	1919	230,351	14.75	3,406,300	59.60	2.86 9,739,300
Average.....	1915-19	202,613	16.08	3,285,678	59.99	2.65 8,801,120
Beans.....	1915	43,310	16.70	723,400	59.61	\$3.05 \$ 2,206,800
	1916	32,500	12.70	412,600	60.00	5.40 2,228,000
	1917	92,457	13.75	1,274,000	59.70	7.45 9,493,400
	1918	228,577	15.50	3,563,380	58.67	5.41 19,283,900
	1919	83,577	16.50	1,388,600	59.99	4.48 6,214,800
Average.....	1915-19	96,984	15.03	1,472,396	59.59	5.16 7,885,380
Buckwheat.....	1915	343,800	22.88	7,865,900	48.02	\$0.75 \$ 5,913,000
	1916	341,500	17.50	5,976,000	46.35	1.07 6,375,000
	1917	395,977	18.00	7,149,400	46.49	1.46 10,443,400
	1918	548,097	20.75	11,375,500	47.41	1.58 18,018,100
	1919	444,732	23.50	10,550,800	47.23	1.50 15,831,000
Average.....	1915-19	414,821	20.53	8,583,520	47.10	1.27 11,316,100
Mixed Grains.....	1915	467,001	37.51	17,517,600	44.98	\$0.57 \$10,062,300
	1916	412,670	25.75	10,584,800	43.13	0.88 9,300,900
	1917	497,236	32.50	16,157,080	44.41	1.16 18,801,750
	1918	921,826	38.75	35,662,300	46.39	1.14 40,726,500
	1919	901,612	31.00	27,851,700	44.83	1.36 37,775,400
Average.....	1915-19	640,069	33.10	21,554,698	46.75	1.02 23,333,370
Flax.....	1915	463,359	13.19	6,114,000	55.28	\$1.51 \$ 9,210,400
	1916	657,781	12.56	8,259,800	54.99	2.04 16,889,900
	1917	919,500	6.50	5,934,900	54.73	2.65 15,737,000
	1918	1,068,120	5.75	6,055,200	53.72	3.13 18,951,000
	1919	1,093,115	5.00	5,472,800	55.14	4.13 22,609,500
Average.....	1915-19	840,375	8.60	6,367,340	54.77	2.89 16,679,560

XVII—Continued

AREA, YIELD AND VALUE OF FIELD CROPS

Crops.		Area. Acres.	Yield per Acre. Bush.	Total Yield. Bush.	Weight per	Average Price.	Total Value.
					measured Bushel. Lb.		
Corn for husking..	1915	253,300	56.72	14,368,000	56.32	\$0.71	\$10,243,000
	1916	173,000	36.25	6,282,000	56.51	1.07	6,747,000
	1917	234,339	33.00	7,762,700	56.18	1.84	14,307,200
	1918	250,000	56.75	14,205,200	53.97	1.75	24,902,800
	1919	264,607	64.00	16,940,500	..	1.30	22,080,000
Average.....	1915-19	235,049	49.34	11,911,680	55.74	1.33	15,656,000
Potatoes.....	1915	485,777	124.24	60,353,000	....	\$0.60	\$36,459,800
	1916	472,992	133.82	63,297,000	....	0.81	50,982,300
	1917	656,958	121.50	79,892,000	....	1.01	80,804,400
	1918	735,192	142.00	104,346,200	....	0.98	102,235,300
	1919	818,767	153.50	125,574,900	....	0.95	118,894,200
Average.....	1915-19	633,937	135.01	86,692,620	....	0.87	77,875,200
Turnips, Mangolds, etc.....	1915	156,691	384.05	60,175,000	....	\$0.24	\$14,588,700
	1916	141,839	264.24	36,921,100	....	0.39	14,329,000
	1917	218,233	290.75	63,451,000	....	0.46	29,253,000
	1918	325,037	377.50	122,699,600	....	0.43	52,252,000
	1919	317,296	354.00	112,288,600	....	0.50	54,958,700
Average.....	1915-19	231,819	334.11	79,107,060	....	0.40	33,076,280
Hay and Clover....	1915	7,776,995	Tons. 1.36	Tons. 10,612,000	....	Per Ton. \$14.37	\$152,531,600
	1916	7,821,257	1.86	14,527,000	....	11.60	168,547,900
	1917	8,225,034	1.66	13,684,700	....	10.33	141,376,700
	1918	10,544,625	1.40	14,772,300	....	16.25	241,277,300
	1919	10,595,383	1.55	16,348,000	....	20.72	338,713,200
Average.....	1915-19	8,992,659	1.57	13,988,800	....	14.65	208,489,340
Grain Hay (B.C.)...	1919	60,390	2.50	151,000	....	\$29.00	\$4,379,000
Fodder Corn.....	1915	332,469	10.17	3,382,770	....	\$4.91	\$16,612,600
	1916	293,058	6.65	1,907,800	....	4.92	9,396,000
	1917	366,518	7.34	2,690,370	....	5.14	13,834,900
	1918	502,069	9.50	4,787,500	....	6.15	29,439,100
	1919	511,769	9.75	4,942,760	....	6.92	34,179,500
Average.....	1915-19	401,177	8.68	3,542,240	..	5.61	20,692,420
Sugar Beets.....	1915	18,000	7.83	141,000	....	\$5.50	\$ 775,500
	1916	15,000	4.75	71,000	....	6.20	440,000
	1917	14,000	8.40	117,600	....	6.75	793,800
	1918	18,000	10.00	180,000	....	10.25	1,845,000
	1919	24,500	9.80	240,000	....	10.86	2,606,000
Average.....	1915-19	17,900	8.16	149,920	....	7.91	1,292,060
Alfalfa.....	1915	98,488	2.65	260,970	....	\$12.68	\$3,309,100
	1916	99,350	2.91	286,750	....	10.69	3,066,000
	1917	109,825	2.39	262,400	....	11.59	3,041,300
	1918	196,428	2.25	446,400	....	17.84	7,963,500
	1919	226,869	2.20	494,200	....	21.85	10,800,200
Average.....	1915-19	146,192	2.48	350,144	....	14.93	5,636,020
Grand Total—1910—30,279,336 acres yielded crops—value.....							\$ 396,635,240
1915—39,140,460 acres yielded crops—value.....							825,370,600
1919—53,049,640 acres yielded crops—value.....							1,452,437,500

XVIII

AREA AND YIELD OF PRINCIPAL WESTERN GRAIN CROPS

MANITOBA

Year	WHEAT		OATS		BARLEY	
	Acres in crop	Bu.	Acres in crop	Bu.	Acres in crop	Bu.
1910	2,760,371	34,125,949	1,209,173	30,378,379	416,016	6,506,634
1915	2,800,424	69,337,000	1,317,365	50,750,000	567,080	16,658,000
1916	2,725,725	29,667,000	1,443,599	48,439,000	687,503	13,729,000
1917	2,448,860	41,039,700	1,500,000	45,375,000	708,000	15,930,000
1918	2,983,702	48,191,100	1,714,894	54,473,500	1,102,965	27,963,400
1919	2,880,301	40,975,300	1,847,267	57,698,000	893,947	17,149,400
1920*	2,563,500	.....	1,884,200	.....	876,100	.....

SASKATCHEWAN

Year	WHEAT		OATS		BARLEY	
	Acres in crop	Bu.	Acres in crop	Bu.	Acres in crop	Bu.
1910	4,228,222	66,978,996	1,888,359	59,922,791	129,621	3,061,007
1915	8,929,260	224,312,000	3,336,245	145,066,000	299,993	9,523,000
1916	9,032,109	147,559,000	3,791,807	163,278,000	367,207	9,916,000
1917	8,273,250	117,921,300	4,521,600	123,213,600	669,900	14,067,900
1918	9,249,260	92,493,000	4,988,499	107,253,000	699,296	11,888,000
1919	10,587,363	89,994,000	4,837,747	112,157,000	492,586	8,971,000
1920*	9,422,800	.....	4,934,500	.....	477,800	.....

ALBERTA

Year	WHEAT		OATS		BARLEY	
	Acres in crop	Bu.	Acres in crop	Bu.	Acres in crop	Bu.
1910	879,301	9,060,210	783,072	16,099,223	121,435	2,480,165
1915	2,138,031	66,538,000	1,827,071	83,076,000	304,009	9,822,000
1916	2,604,975	65,088,000	2,124,081	102,199,000	336,586	9,774,000
1917	2,897,300	52,992,100	2,537,900	86,288,600	472,100	10,386,200
1918	3,892,489	23,752,000	2,651,548	60,323,000	470,073	7,756,000
1919	4,282,503	34,575,000	2,767,372	65,725,000	414,212	10,562,000
1920*	3,516,400	.....	2,795,000	.....	397,600	.....

*Preliminary estimate.

MINERAL PRODUCTION 1919

In this table the quantities of the metals given include the product of refineries, the metals contained in smelter products exported for further smelting and refining, and the metals estimated as recovered from ores produced and shipped outside of Canada for treatment.

The metals are valued for statistical purposes at the market price of the refined product.

Non-metallic products are valued as shipped from the mines.

The unit ton used is the ton of 2,000 pounds.

<i>Metallic.</i>	Quantity.	Value.
Antimony ore (exports).....*tons	56	\$ 8,420
Cobalt, metallic and contained in oxide, etc., at \$2.50 per lb.....lbs.	336,185	840,463
Copper, value at 18.691 cents per lb.. "	75,124,653	14,041,549
Gold.....ozs.	767,167	15,858,749
Iron, pig from Canadian ore.....tons	38,457	899,406
Iron ore, sold for export..... "	5,883	46,525
Lead, value at 6.966 cents per lb.....lbs.	43,895,888	3,057,788
Molybdenite (exports)..... "	113,520	84,228
Nickel, value at 40 cents per lb..... "	44,542,953	17,817,181
Platinum.....	11	
Silver, value at 111.122 cents per oz....ozs.	15,675,134	17,418,522
Zinc, value at 7.338 cents per lb.....lbs.	31,738,859	2,328,998
Total.....		\$72,401,829
<i>Non-Metallic.</i>		
Actinolite.....tons	80	\$ 880
Arsenic, white and in ore..... "	3,192	508,770
Asbestos..... "	136,199	10,658,946
Asbestic..... "	18,766	54,087
Barytes and Manganese..... "		18,713
Chromite..... "	8,366	224,971
Coal..... "	13,586,300	54,051,720
Feldspar..... "	15,944	91,273
Fluorspar..... "	5,063	97,837
Graphite..... "	1,322	92,241
Grindstones..... "	2,063	64,296
Gypsum..... "	306,947	1,217,345
Magnesite..... "	11,073	328,465
Magnesium Sulphate..... "	771	7,305
Mica..... "		273,305
Mineral Water.....		146,909
Natural Gas.....M cu. ft.	21,750,091	4,071,572
Oxides.....tons	11,862	113,397
Peat..... "	986	6,561
Petroleum, crude.....brls.	240,970	744,677
Phosphate.....tons	24	331
Pyrites..... "	177,487	522,704
Quartz..... "	105,055	247,385
Salt..... "	**139,842	1,308,407
Talc..... "	18,642	116,295
Tripolite..... "	550	11,000
Total.....		\$74,919,392

*Short tons throughout.

|| Returns incomplete—see text, page 80.

**Additional returns give a total of 148,302 tons, valued at \$1,398,968.

XIX—Continued

MINERAL PRODUCTION 1919

<i>Structural Materials and Clay Products.</i>	Quantity.	Value.
Cement, Portland.....brls.	4,991,340	\$9,783,393
Clay products (\$7,657,938)—		
Brick, common.....No.	293,918,891	3,723,033
Brick, pressed....."	67,587,295	1,257,833
Fireproofing.....tons		359,882
Hollow Building Blocks.....No.	2,202,000	63,275
Kaolin.....tons	759	13,744
Pottery.....		†187,574
Refractories, fire clay, etc.....		†380,934
Sewerpipe.....tons	56,287	1,061,010
Terra Cotta.....		2,861
Tile, drain.....No.	19,161,718	607,792
Lime§.....bush.	6,999,706	2,268,432
Sand-lime brick.....No.	28,219,399	377,040
Sand and gravel (not complete).....tons	3,906,247	1,687,991
Slate.....sq.	1,632	10,853
Stone (\$3,969,045):		
Granite.....		968,111
Limestone.....		2,708,625
Marble.....		213,982
Sandstone.....		78,327
Total Structural Materials and clay products.....		25,754,692
All other Non-metallic.....		74,919,392
Total value Metallic.....		72,401,829
Grand Total, 1919.....		\$173,075,913

†Excluding \$704,846 from imported material.

‡Excluding \$73,180 from imported material.

§27,950 tons hydrated lime marketed, valued at \$295,164.

XX

GROSS VALUE OF PRODUCTS 1905, 1910, 1915 AND 1917
COMPARED BY GROUPS OF INDUSTRIES

GROUPS	Increase in value per cent.			
	1905.	1910.	1915.	1917.
Food Products.....	\$173,359,431	\$245,689,321	\$388,815,362	\$754,637,940
Textiles.....	85,982,979	135,902,441	144,686,005	205,448,565
Iron and Steel Products.....	53,012,689	113,640,610	120,422,420	400,385,086
Timber and Lumber and their re-manufactures.....	112,545,298	184,630,376	123,396,686	225,522,189
Leather and its finished Products.....	42,132,007	62,860,412	71,030,644	104,804,689
Paper and Printing.....	33,749,020	46,438,053	74,038,398	37,066,426
Liquors and Beverages.....	14,394,319	28,936,782	34,859,927	110,290,207
Chemicals and allied Products.....	15,728,306	27,798,833	43,410,486	70,746,355
Clay, Glass and Stone Products.....	13,963,400	25,781,860	27,214,813	32,374,060
Metals and Metal Products other than Steel.....	50,923,144	73,241,766	90,943,278	171,650,905
Tobacco and its Manufactures.....	15,274,923	25,329,323	46,786,233	65,821,444
Vehicles for Land Transportation.....	37,396,302	59,712,114	73,878,212	197,488,770
Vessels for Water Transportation.....	1,943,195	6,575,417	8,419,648	238,386,477
Miscellaneous Industries.....	66,249,395	104,618,560	134,268,231	386,420,242
Hand Trades.....	1,698,195	14,829,741	40,729,180	80,864,273
Totals.....	\$718,352,603	\$1,165,975,639	\$1,407,137,140	\$3,015,577,940
			62.31	20.68
				114.31

XXI

COMPARISON OF MANUFACTURES OF TEN PRINCIPAL CITIES

	Increases Per cent.			
	1900.	1910.	1915.	1917.
Montreal.....	\$71,099,750	\$166,296,972	\$243,237,575	\$406,727,258
Toronto.....	60,366,857	154,306,948	219,143,728	456,250,198
Hamilton.....	17,122,346	55,125,946	60,063,339	103,506,408
Winnipeg.....	8,616,248	32,699,359	47,686,070	98,101,632
Vancouver.....	4,990,152	17,040,105	33,871,044	57,172,390
Quebec.....	12,779,546	17,149,365	18,933,227	34,857,741
Ottawa.....	7,638,688	16,977,233	18,947,325	34,671,203
London.....	8,122,185	16,273,990	18,885,212	34,615,211
Kitchener.....	3,307,513	9,296,188	16,408,401	30,171,284
Halifax.....	6,927,552	12,140,409	15,119,527	15,247,469
				75.25
				24.53
				0.85

XXII

CANADIAN TRADE COMMISSIONERS

At present Canada has the following trade commissioners:

Argentine Republic...	Buenos Aires....	Reconquista No. 46. Cable Address, Canadian.
Australia.....	Melbourne.....	Stock Exchange Building. Cable Address, Canadian.
Brazil.....	Rio de Janeiro....	Rua Goncalves Dias 30. Cable Address, Canadian.
British West Indies....	Bridgetown.....	Barbados; agent also for the Ber- mudas and British Guiana. Cable Address, Canadian.
China.....	Shanghai.....	13 Nanking Road. Cable Address, Cancoma.
Cuba.....	Havana.....	501 and 502 Teniente Rey 11. Cable Address, Cantracom.
France.....	Paris.....	17 and 19 Boulevard des Capucines. Cabel Address, Stadacona.
Holland and Belgium..	Rotterdam.....	Zuidblaak 26. Cable Address, Watermill.
India.....	Calcutta.....	Care of H.M. Trade Commissioner, McLeod House, Dalhousie Square.
Italy.....	Milan.....	vie Carlo Cattaneo, 2. Cable Address, Canadian.
Japan.....	Yokohama.....	50-B Main Street. Cable Address, Canadian.
Newfoundland.....	St. John's.....	Bank of Montreal Bldg., Water St. Cable Address, Canadian.
New Zealand.....	Auckland.....	Union Buildings, Custom Street. Cable Address, Canadian.
South Africa.....	Cape Town.....	Westminster House. Cable Address, Canadian.
South Eastern Europe.	Bucharest.....	Athenee Palace Hotel. Cable Address, Canadian.
United Kingdom.....	London.....	73 Basinghall Street, E.C.2, England. Cable Address, Sleighing, London.
	Manchester.....	4 St. Ann's Square. Cable Address, Cantracom.
	Liverpool.....	Century Bldgs., 31 North John St. Cable Address, Cantracom.
	Bristol.....	Sun Building, Clare Street. Cable Address, Canadian.
	Glasgow.....	87 Union Street, Scotland. Cable Address, Cantracom.

XXII—Continued

CANADIAN COMMERCIAL AGENTS

Following is a list of the commercial agents:

Australia.....	Sydney, N.S.W....	Royal Exchange Building.
British West Indies....	Port-of-Spain, Trinidad.....	
	Nassau, Bahamas.	Cable Address, Canadian.
Norway & Denmark.	Christiania, Norway.....	Grubbegd, No. 4. Cable Address, Sontums.

XXIII

BRITISH TRADE COMMISSIONERS

Africa (East).....	Nairobi.	Telegraphic Address, "Britishers, Nairobi."
Africa (South).....	Johannesburg....	P.O. Box 838, Goldfields Bldg., Eloff Street. Telegraphic Address, "Austere."
	Capetown.....	P.O. Box 1346, Norwich Union Bldg. Telegraphic Address, "Austere."
Australia.....	Melbourne.....	Commerce House, Flinders Street. Telegraphic Address, "Combrit."
	Sydney.....	Royal Exchange. Telegraphic Address, "Combritto."
Canada.....	Montreal.....	Ottawa Building, 248 St. James St. Telegraphic Address, "Britcom."
	Toronto.....	260 Confederation Life Building. Telegraphic Address, "Toroncom."
	Newfoundland...	Ottawa Building, 248 St. James St., Montreal, Que. Telegraphic Address, "Britcom."
	Winnipeg.....	610 Electric Railway Chambers. Telegraphic Address, "Wincom."
British West Indies & British Honduras...	Trinidad.....	Port-of-Spain.
India and Ceylon....	Calcutta.....	Allahabad Bank Buildings. Telegraphic Address, "Ainscough."
	Bombay.....	H.M. Trade Commissioner, Bombay.
New Zealand.....	Wellington.....	P.O. Box 369. Telegraphic Address, "Advantage."
Singapore.....		H.M. Trade Commissioner, Singa- pore.

XXIV

DIRECTORY

The following Governmental and other reports and publications giving detailed data on Canada are available on application to official or department shown in italics.

AGRICULTURE.—Annual Reports of the Minister of Agriculture, Dairy and Cold Storage Commissioner, Entomology, Veterinary Director-General, Experimental Farms, and reports, bulletins and pamphlets of these Branches—*Publications Branch, Department of Agriculture, Ottawa. Reports of Departments of Agriculture at Provincial Capitals. Annual Reports—Commission of Conservation, Ottawa.*

AGRICULTURAL CREDITS.—Co-operative Loans, etc.—*Departments of Agriculture at Provincial Capitals.*

AGRICULTURAL STATISTICS.—Canada Year Book, Bulletin of Agricultural Statistics, Report on Census of 1911—*Dominion Bureau of Statistics, Ottawa; Departments of Agriculture at Provincial Capitals.*

BANKING IN CANADA.—Maps showing location of branches, etc.—*Natural Resources Intelligence Branch, Ottawa. General Information—Department of Finance, Ottawa.*

BANK STATISTICS.—Canada Year Book—*Dominion Bureau of Statistics, Ottawa.*

CANADIAN AFFAIRS.—Canada Year Book—*Dominion Bureau of Statistics, Ottawa.*

CANALS.—Write *Department Railways and Canals, Ottawa.*

CLIMATE.—Climate of Canada, Rainfall and Snowfall of Canada—*Director Meteorological Service, Toronto. Canada Year Book—Dominion Bureau of Statistics, Ottawa; Departments of Agriculture at Provincial Capitals.*

COMMERCE STATISTICS.—Annual, Monthly and Weekly Reports—*Department Trade and Commerce, Ottawa.*

COMMERCIAL ENQUIRIES.—Boards of Trade or Chambers of Commerce at all principal centres; *British Trade Commissioners, Montreal, Toronto and Winnipeg.*

COMPANIES.—Incorporation of.—List of Companies incorporated, etc.—*Secretary of State, Ottawa; Provincial Secretary at Provincial Capitals.*

DAIRYING.—Annual Report of Commissioner of Dairy and Cold Storage, Bulletins on Milk, Cheese, Butter, etc.—*Publications Branch, Department of Agriculture, Ottawa. Bulletin on Dairy Industries, Census of Dairy Industries—Dominion Bureau of Statistics, Ottawa. Various Bulletins and Reports—Departments of Agriculture at Provincial Capitals.*

EDUCATION.—Annual and Special Reports of Provincial Governments—Write *Minister of Education of each Province. Educational Statistics, Canada Year Book—Dominion Bureau of Statistics, Ottawa. Technical Education—Director of Technical Education, Department of Labor, Ottawa. Agricultural Education—Minister of Agriculture, Ottawa, and Minister of Agriculture of each Province.*

FISHERIES.—Various reports—*Commission of Conservation, Ottawa. Annual and Special Reports—Fisheries Department, Ottawa. Fisheries of Quebec—Department Colonization, Mines and Fisheries, Quebec. Annual Report—Fisheries Branch, Department Public Works, Toronto. Report Commissioner of Fisheries—Department of Fisheries, Victoria, B.C.*

XXIV—Continued

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FORESTS AND FOREST PRODUCTS.—Various reports—*Commission of Conservation, Ottawa.* Annual and Special Reports—*Forestry Branch, Department Interior, Ottawa; Department Lands and Mines, Fredericton, N.B.; Department Lands and Forests, Quebec; Provincial Forester, Toronto; Commissioner of Provincial Lands, Winnipeg, Man.; Department Agriculture, Edmonton, Alta.; Bureau of Labor and Industries, Regina, Sask.; Chief Forester, Victoria, B.C.*

FRUIT.—Report of Fruit Commissioner, Bulletins on various Fruits—*Publications Branch, Department Agriculture, Ottawa.* Various Bulletins on varieties of Fruits, Trees, etc., and Instruction—*Departments of Agriculture at Provincial Capitals.*

FUEL.—*Commission of Conservation, Ottawa; Mines Branch, Ottawa; Natural Resources Intelligence Branch, Ottawa; Department Public Works and Mines, Halifax, N.S.; Department Lands and Mines, Fredericton, N.B.; Department Colonization, Mines and Fisheries, Quebec, Que.; Ontario Bureau of Mines, Toronto; Commissioner of Provincial Lands, Winnipeg, Man.; Bureau of Labor and Industries, Regina, Sask.; Publicity Commissioner, Edmonton, Alta.; Department Mines, Victoria, B.C.*

FUR FARMING.—Fur Farming in Canada—*Commission of Conservation, Ottawa.* Annual Report—*Department Agriculture, Charlottetown, P.E.I.* Fur Farming in Quebec—*Department Colonization, Mines and Fisheries, Quebec; Provincial Game Warden, Victoria, B.C.* Fur-Bearing Animals in North West Territories—*Dominion Parks Branch, Ottawa.*

GAME.—Annual Report—*Game and Fisheries Branch, Department Public Works, Toronto, Ont.; Publicity Commissioner, Edmonton, Alta.; Provincial Game Warden, Regina, Sask.*

GRAIN ELEVATORS.—List of Licensed Elevators—*Department Trade and Commerce, Ottawa.*

GRAIN STATISTICS.—Monthly Bulletin Agricultural Statistics—*Dominion Bureau of Statistics, Ottawa.* Annual and Special Reports—*Department Agriculture, Edmonton, Alta.; Department Agriculture, Regina, Sask.; Department Agriculture, Winnipeg, Man.; Department Trade and Commerce, Ottawa.* Cereal Maps of Manitoba, Saskatchewan and Alberta (shows acres under different grains)—*Natural Resources Intelligence Branch, Ottawa.*

HARBORS.—Port Directory of Principal Ports and Harbors—*Department Marine and Fisheries, Ottawa.*

HEALTH.—Annual and Special Reports—*Department of Health, Ottawa; Provincial Board of Health, Toronto; Department of Health, Edmonton, Alta.; Provincial Secretaries at Victoria, Regina, Winnipeg, Quebec, St. John, Halifax.*

HIGHWAYS.—*Department Public Works, Ottawa; Highways Branch, Department Public Works, Toronto; Departments of Public Works of other Provinces at Provincial Capitals.*

HOMESTEADS.—Homestead Maps showing land available for settlement, Timber Berths, Dominion Lands Offices, etc.—*Natural Resources Intelligence Branch, Department Interior, Ottawa.* Dominion Lands Handbook (Homestead Regulations)—*Department Interior, Ottawa; Department Lands and Forests, Toronto; Department Agriculture, Edmonton, Alta.* Homesteads and Pre-emptions—*Department of Lands, Victoria, B.C.*

HOUSING.—Various Reports—*Commission of Conservation, Ottawa; Provincial Secretary at Provincial Capitals.*

XXIV—Continued

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HYDROGRAPHIC SURVEYS.—Charts of Navigable Waters of Canada—*Hydrographic Surveys Branch, Naval Service Department, Ottawa.*

HYDROMETRIC SURVEYS.—Annual Stream Measurement Reports for Alberta and Saskatchewan—*Irrigation Branch, Department Interior, Ottawa.* Dominion Water Power Branch Annual Reports and Special Bulletins on Water Powers, Electric Development, etc.—*Water Power Branch, Department Interior, Ottawa.*

IMMIGRATION.—Various pamphlets regarding Dominion, including Laws and Regulations Respecting Immigration and Immigrants, Land Regulations, Information for Intending Settlers—*Superintendent of Immigration, Ottawa.* Handbook for Intending Settlers—*Natural Resources Intelligence Branch, Ottawa.*

Alberta—*Department Agriculture, Edmonton.*

British Columbia—*Department Lands, Victoria.*

Manitoba—*Superintendent of Immigration and Colonization, Winnipeg.*

New Brunswick—*Department Lands and Mines, Fredericton.*

Nova Scotia—*Secretary of Industries and Immigration, Halifax.*

Ontario—*Bureau of Colonization, Department Lands and Forests, Toronto.*

Quebec—*Department Colonization, Mines and Fisheries, Quebec.*

Saskatchewan—*Bureau of Information and Statistics, Regina.*

INDUSTRIAL CONDITIONS.—The Labour Gazette (official monthly); Annual Report of Wholesale Prices in Canada; Annual Report on Labour Organizations in Canada; Annual Departmental Report; Special Bulletins—*Department Labour, Ottawa.* Annual Labour Reports—*Bureau of Labour, Toronto.* Annual Report—*Bureau of Labour and Industries, Regina, Sask.; Provincial Labour Bureau, Victoria, B.C.*

INSURANCE COMPANIES.—Statements, etc.—Annual Reports—*Superintendent of Insurance, Ottawa, Regina, Winnipeg and Toronto, and Provincial Secretaries of other Provinces.*

IRRIGATION.—Annual Reports, Irrigation Acts, Practice, etc.—*Superintendent of Irrigation, Department Interior, Ottawa; Department Agriculture, Victoria, B.C.; Comptroller Water Rights, Victoria, B.C.; Department Agriculture, Edmonton, Alta.; Commission of Conservation, Ottawa.*

LABOUR.—See Industrial Conditions.

LABOUR BUREAUS, ORGANIZATIONS, ETC.—Annual Report—*Department of Public Works and Labour, Quebec; Bureau of Labour, Toronto; Bureau of Labour and Industries, Regina, Sask.; Provincial Labour Bureau, Victoria, B.C.*

LIVESTOCK.—Various Reports—*Publications Branch, Department Agriculture, Ottawa; Departments of Agriculture at Provincial Capitals; Commission of Conservation, Ottawa.*

LOAN AND TRUST COMPANIES.—Statements, etc.—Annual Report—*Superintendent of Insurance, Ottawa.* Annual Report—*Registrar of Loan Corporations, Toronto; Provincial Treasurers of other Provinces at Provincial Capitals.*

MANUFACTURES.—Report on Census 1917—*Dominion Bureau of Statistics, Ottawa; Bureau of Labour and Industries, Regina, Sask.; Provincial Secretaries at Provincial Capitals.*

XXIV—Continued

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MINING, MINING LAWS AND REGULATIONS.—Annual and Special Reports—*Department Mines, Ottawa; Geological Survey, Ottawa; Ontario Bureau of Mines, Toronto; Department of Mines, Victoria; Department Public Works, Edmonton; Bureau of Labour and Industries, Regina; Commissioner of Provincial Lands, Winnipeg; Department Colonization, Mines and Fisheries, Quebec; Department Public Works and Mines, Halifax; Commission of Conservation, Ottawa.*

MUNICIPAL OFFICIALS, STATISTICS, ETC.

Alberta—Annual Report, *Department Municipal Affairs, Edmonton.*

Saskatchewan—*Public Service Monthly, Regina.*

Manitoba—Annual Sheet, *Municipal Commissioner, Winnipeg.*

Ontario—Ontario Municipal Bulletin and Special Reports—*Bureau of Municipal Affairs, Provincial Secretary's Department, Toronto.*
Annual Report—*Bureau of Labour, Toronto.*

Quebec—Annual Report, *Department Municipal Affairs, Quebec.*

POWER.—See Water-Powers.

PROVINCIAL STATISTICS AND INFORMATION.

Alberta—*Publicity Commissioner, Department Agriculture, Edmonton.*

British Columbia—*Handbook of British Columbia—Bureau of Information, Parliament Buildings, Victoria.*

Manitoba—*Publicity Commissioner, Winnipeg.*

New Brunswick—*Secretary to the Premier, Fredericton.*

Nova Scotia—*Secretary of Industries and Immigration, Halifax.*

Ontario—*Handbook of Ontario—Colonization Branch, Department Agriculture, Toronto.*

Prince Edward Island—*The Premier, Charlottetown.*

Quebec—*Statistical Year Book—Bureau of Statistics, Provincial Secretary's Department, Quebec.*

North West Territories } *Superintendent Natural Resources Intelli-*
Yukon } *gence Branch, Department Interior, Ottawa.*

RAILWAYS.—Annual Report—*Department Railways and Canals, Ottawa.*
Annual Report—*Board of Railway Commissioners for Canada, Ottawa.*
Sundry Reports—*Natural Resources Intelligence Branch, Ottawa.*

TOPOGRAPHICAL SURVEYS.—Annual and Special Reports—*Topographical Surveys Branch, Department of the Interior, Ottawa.*

TREATIES WITH FOREIGN COUNTRIES.—*Department External Affairs, Ottawa; Department Trade and Commerce, Ottawa.*

WAGES.—Wage Bulletins, Monthly Reports—*Bureau of Labour, Ottawa.*
Annual Report—*Bureau Labour, Toronto; Bureau of Labour and Industries, Regina, Sask.; Provincial Labour Bureau, Victoria, B.C.; Provincial Secretaries at Halifax, St. John, Quebec, Winnipeg and Edmonton.*

WATER-POWERS.—Water-Powers of Canada, by Leo. G. Denis and Arthur V. White, 1911; Water-Powers of Manitoba, Saskatchewan and Alberta, by Leo. G. Denis and J. B. Challies, 1916; Water-Powers of British Columbia, by Arthur V. White, 1919; Electric Generation and Distribution in Canada, by Leo. G. Denis, 1918—*Commission of Conservation, Ottawa.*

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Water Resources Papers, containing results of regular stream gauging work of the British Columbia and Manitoba Hydrometric Surveys, also results of special investigations into the power possibilities of certain watersheds and other data relating to water-powers of the Dominion—*Dominion Water-Power Branch, Department of Interior, Ottawa*. Annual Reports and Reports of Progress of Stream Measurements dealing chiefly with irrigation districts of Alberta—*Irrigation Branch, Department of Interior, Ottawa*. Reports of Nova Scotia Water-Power Commission from 1915, in progress, *Halifax, N.S.* Reports of New Brunswick Water-Power Commission, in progress, *St. John, N.B.* Reports of Quebec Streams Commission from 1912, in progress, *Quebec*. Annual Reports Ontario Hydro-Electric Power Commission from 1909, in progress, *Toronto*. Reports of Manitoba Hydrometric Survey—See *Water Resources Papers* also *Commission of Conservation and Department Interior publications*. Saskatchewan and Alberta—See *Commission of Conservation and Department Interior publications*. Annual Reports—*Water Rights Branch, Department Lands, Victoria, B.C.*, also see *Commission of Conservation and Dominion Water-Power Branch publications*.

WORKMEN'S COMPENSATION.—*Workmen's Compensation Board, Toronto; Bureau of Labour and Industries, Regina; Attorneys-General of other Provinces at Provincial Capitals.*

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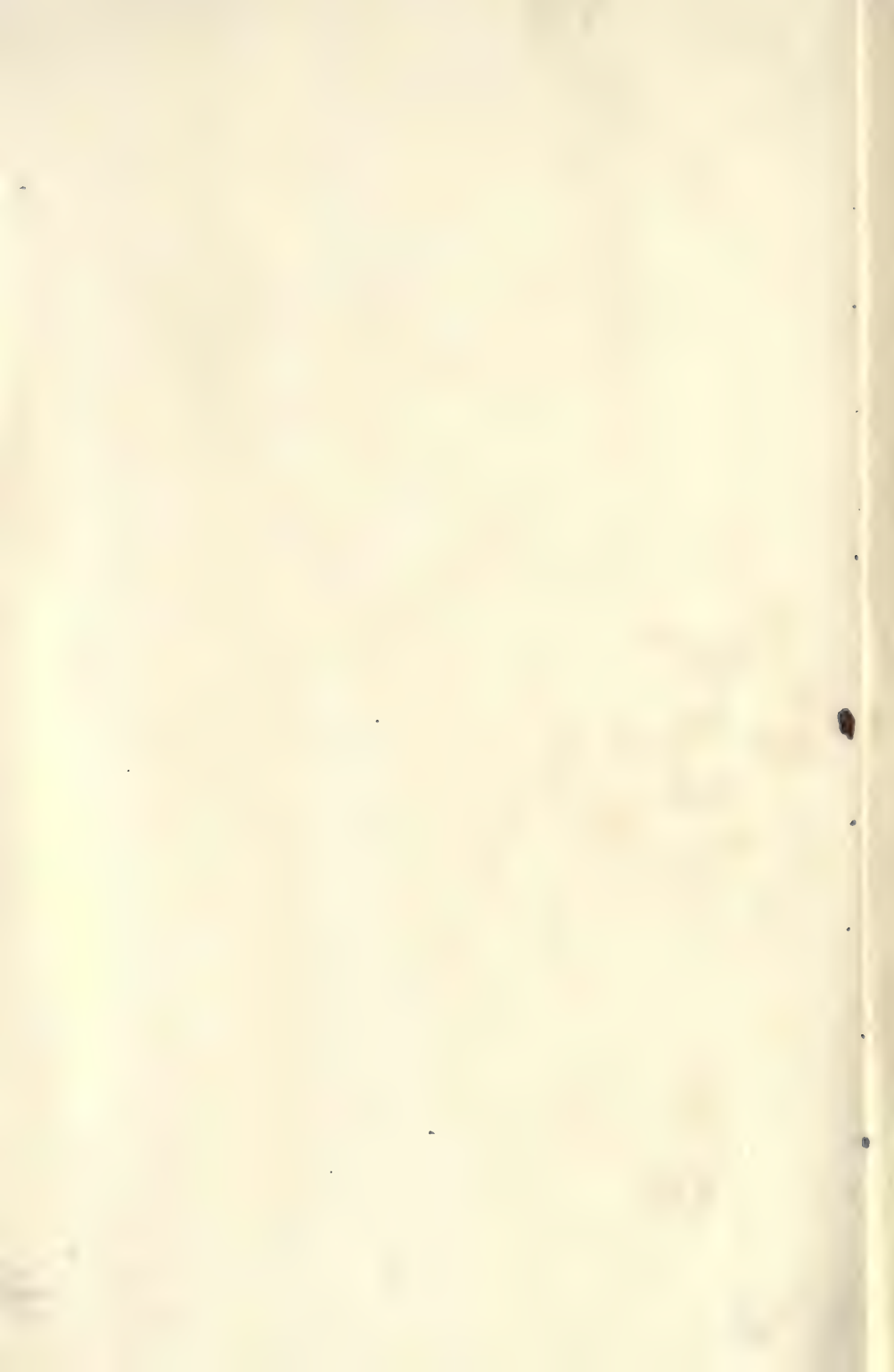
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